620

Contractors and Engineers

magazine of modern construction

OCTOBER
1955

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Excavating for the St. Lawrence Seaway's Grass River Lock on Long Sault Canal, a Marion 111-M dragline with a Yaun 4-yard bucket loads a C & D 25-yard Movall. The sticky wet clay in this area will not dump by gravity, but this haul unit, pulled by a Caterpillar DW21 tractor, ejects the load in a few seconds.

Page 31

How Concrete Of Required Workability Can Be Obtained Most Economically

As every concrete man knows, obtaining increased workability by adding water has two serious disadvantages. First, it increases the cost of the concrete because more cement is required to maintain strength. Second, it lowers the quality of the concrete because it increases shrinkage and permeability and decreases durability.

Experience on thousands of jobs has proved that the best and most economical way to obtain required workability is with Pozzolith. When Pozzolith is added to a plain mix, slump is increased 150% or more.

For equal slump, approximately one gallon (15%) less water per sack of cement is required for a Pozzolith mix. Plasticity is improved . . . less time is required for placing and finishing.

In addition to providing required workability most economically, Pozzolith reduces shrinkage, lowers permeability and increases durability, because Pozzolith is the key to producing concrete with the lowest possible *unit water content* (water required per cubic yard of concrete).



Quinnesec Falls Dam
Owner: Wisconsin Michigan Power Company
Engineer: Mead & Hunt, Inc., Madison, Wisconsin
Contractor: C. R. Meyer & Sons, Oshkosh, Wisconsin
Pozzolith Concrete batched at job site.

POZZOLITH
in concrete for uniform quality...

POZZOLITH... *the key to-*

- lowest possible unit water content*
- close control of entrained air... placing consistency... rate of hardening
- reduced costs

* For a given set of materials and water-cement ratio, unit water content (water required per cubic yard of concrete) is the most important basic factor affecting the quality of concrete. A.C.I., Committee 613, 1944 Report, Page 655. Bureau of Reclamation Concrete Manual, 5th edition, Page 130.

This dam is one of a long list of outstanding structures built since 1932 in which Pozzolith, an admixture for concrete, has enabled engineering to better control concrete quality.

Engineers employ Pozzolith with confidence because:

1. ***proved performance***...100 million cubic yards of concrete produced with Pozzolith for all types of jobs.

2. ***applied know-how***...over 70 skilled Master Builders' field technical men for product-use consultation.

3. ***available everywhere***...1000 ready-mix and job-site plants now producing concrete with Pozzolith.

Ask us to demonstrate the advantages of Pozzolith for your project.

The MASTER BUILDERS Co.
Subsidiary of American-Marietta Company

For more facts, use Reader-Reply Card opposite page 18 and circle No. 201

FLOORS THAT WEAR 4-6 TIMES LONGER

Many million square feet of Masterplate armored floors in service in America's plants show that Masterplate floors are times more wear-resistant than the best concrete floor.

"Iron-clad" Masterplate floors are also dusting, corrosion-resistant, easy-to-clean, slip and spark-safe. (Static-dissipating spark-resistant floors are produced with Masterplate.) Non-colored and colored.



Section of Masterplate Floor
Note Thickness of Armored Surface

Experience has proved the value of Masterplate armored floors in helping to maintain a smooth flow of production, reduce maintenance expense and improve plant appearance.

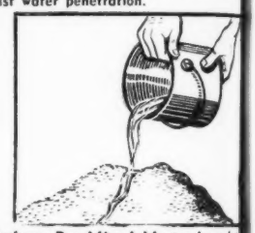
Only with Masterplate can an "iron-clad" Masterplate floor with all of its service advantages be obtained. This is because only Masterplate contains Master Builders exclusive ment-dispersing agent which makes it possible to float easily a pound or more of the ductile metal on fresh concrete and keep the surface. (Available as Standard Masterplate and Ready-4-Use Masterplate — a complete product, ready to use as it comes from the package.)

Full information on Masterplate—for new and resurfacing old concrete floors—and a "do-for-yourself" demonstration kit supplied on request by the manufacturer, The Master Builders Co., Cleveland 3, Ohio.

NON-SHRINK MORTAR FOR LASTING CONCRETE REPAIR

All plain cement-sand mortars shrink, leaving voids and capillaries as convenient passages for water penetration. Shrinkage may cause mortar to crack and lose bond.

Embeco Pre-Mixed Mortar provides a mortar of easy placeability that is non-shrinking, develops a strong bond between old mortar or concrete and new mortar. Repairs made with Embeco Pre-Mixed Mortar are dense and tough and resist water penetration.



Embeco Pre-Mixed Mortar is ready-mixed —add only water and mix.

Typical uses of Embeco Pre-Mixed Mortar: patching concrete floors, steps, walks; repairing wall and floor cracks; grouting around pipes through walls; tuck pointing; caulking joints between floor slabs and basement walls; repair of concrete pipe; repair of brick and block joints; etc.

A 4-page folder on Embeco Pre-Mixed Mortar covering applications, advantages, pictures, directions and estimating data may be obtained from the manufacturer, The Master Builders Co., Cleveland 3, Ohio.



EMBECO PRE-MIXED GROUT FOR NON-SHRINK GROUT

To avoid shrinkage—principal cause of failure in equipment grouts—plant engineers use Embeco Pre-Mixed Grout, the product that is easier to use and provides a non-shrinking, non-life grout.

Cross-section shows how an easily flowable Embeco Pre-Mixed Grout compacts shrinkage to produce full contact with bedplate.

Embeco Pre-Mixed Grout is ready-to-use—add only water and mix. Uniformly superior results are assured because: (a) all ingredients are accurately proportioned and thoroughly blended (b) cement is quality-tested, and (c) clean, sharp, scientifically graded aggregates specially formulated in Master Builders laboratories for the recommended applications, is used.

Embeco Pre-Mixed Grout is recommended for grouting heavy equipment, machinery bases, anchor bolts, building columns, bridge seats and similar applications.

An 8-page illustrated folder on Embeco Pre-Mixed Grout describing measurable characteristics, grouting of heavy equipment, methods of placing of grout, common methods of preparation and forming, cold and hot weather grouting, etc. may be obtained from the manufacturer, The Master Builders Co., Cleveland 3, Ohio.

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EDITORIAL

Storm over Hell's Canyon

Now that the Federal Power Commission has given Idaho Power Co. permission to build three dams in Hell's Canyon on the Snake River near the Idaho-Oregon border, the public vs. private power issue again is simmering. Zealots who think only the federal government should build dams are aroused. Public power advocates, led by Democratic senators from the Northwest, are threatening to turn the Hell's Canyon issue into another Dixon-Yates controversy.

These men charge that the Idaho Power Co. will develop only half the potential of the nation's last great power site, that the three dams will generate only 500,000 kw as compared to the 900,000 kw a single government-sponsored dam would make available. Their other arguments are that the triple-dam plan will wreck the master plan for developing full power resources in the Northwest, and that the price of private power will be higher than that charged for power from a government dam.

But Interior Secretary Douglas McKay has at hand good arguments for those favoring the public-power scheme. McKay, who has long favored the development of power through a partnership of public and private agencies—with private enterprise being allowed to build projects it is willing and able to finance—can probably be expected to use these arguments to back up the decision of the FPC:

Federal development of Hell's Canyon would cost the government $500 million, and possibly two or three times that amount. Developing the site to its full potential would mean an expenditure of $1.7 billion. And whether full or partial development is done by the federal government, money for the work would have to be appropriated from the Treasury. In other words, it would have to be raised by taxation.

All the nation's taxpayers would have to share the burden of paying for the project, although the dam would have a direct benefit for only four Pacific Northwest states.

Also making the federal development of Hell's Canyon unpopular is the fact that the government has already poured $1.5 billion into power projects in this area during the last ten years, and is obligated to spend an equal amount during the next decade. This is 40 per cent of all federal expenditures for power resources. Opposition to spending more money in this area is growing in Congress. The project has been turned down four times already, and public power forces couldn't even muster enough votes to get the issue out of the House and Senate Interior Committees this year.

The advantages of private development are apparent. Idaho Power Co. will spend only $250 million on its proposed project, which includes three small dams and transmission lines. Not a penny of this will come from the government and the company will pay nearly $10 million a year in taxes on the project.

Surely, if private enterprise can do the job more economically, there is no reason why taxpayers across the nation should be compelled to pay for the Hell's Canyon project. Government monopoly, like any kind of monopoly, does not always work to the advantage of the public.

NEWS AND VIEWS



Just after visiting the GM Powerama in Chicago this month, ARBA officials got together in Chicago to plan the 1957 convention and Road Builders' show. Left to right are ARBA executive vice president Eugene Reybold, managing director of the contractor division Burton F. Miller, and administration manager Norman Almquist. With them is Loren Wells, manufacturers' sales executive of GM's Detroit Diesel engine division.

There are bottlenecks on every job, but on a job as big as the St. Lawrence project in the vicinity of Massena, N. Y., they touch almost every phase of construction on the power project (see page 30) and on the seaway (see pages 31 and 40). Our report from the field shows that shortages of living quarters and high prices are combining with other factors to discourage skilled workmen from joining the project, and contractors just getting started are feeling a very real labor pinch.

Bridges pose another bottleneck. Most of the spans in the area will not support heavy loads, and construction machinery can only be moved into the area by rail. But even rail facilities are inadequate and new lines are being rushed to completion to augment existing ones. Roads in and near the construction area are inadequate, and as a result, contractors have had to do a great deal of maintenance and reconstruction to keep their equipment rolling. But by the time the site feels the full impact of work, careful scheduling and planning are expected to eliminate some of these difficulties.

A defective two-mile-long sewer in Laurelton, Queens, has made quite a stench in the New York City metropolitan area in more ways than one. Completed in 1952 at a contract price of $185,679, the sewer is now in operating condition, says the city, as a result of new work. The contractor was sentenced to 8½ to 17 years in prison for constructing a faulty sewer. Three former borough engineers who had supervision of the project also got prison terms ranging from two to five years for fraud and conspiracy.

There's a lighter side to contracting, as a Pittsburgh housewife proved when she entered the road-building business on a do-it-yourself basis. After waiting for a year for the city to fix a hole in the street near her home, she went to work with rock and concrete, fixed the hole herself, then put up a barricade with a sign reading, "Slow! Street repairs".

Keeping statistics must be a nerve-wracking job. In totaling July statistics for volume of traffic, revenue, etc., for the Garden State Parkway, employees had to make room for a new entry. We wonder just where they listed the two boys and a girl born on the toll road during the month. Or if they kept a record of the fact that one set of parents appropriately named their offspring William Parkway.



◀ The small Eidal spray rig, towed by a Ford dump truck, dispenses 2, 4-D along U. S. 50, killing weeds in the backslope area as well as on the shoulder.



▲ The operator riding the rig pulls the 22-foot spraybar up and over a road sign by turning a circular handle.

Early spraying of shoulders pays year-round dividends

The daily spraying of 20 to 25 miles on U. S. 50 near Grand Junction, Colo., early last spring minimized this summer's maintenance operations on the road while making the route safer to travel and more pleasing to view.

When work started early in May, the primary objective of the Grand Junction District was to kill the rank growths which usually grow quickly during the early spring months, obscuring highway curve signs and other highway markers which cue motorists to such things as potential road hazards, directions, and speed limits.

Using two spray rigs made by Eidal Mfg. Co., Albuquerque, N. Mex., the district applied 2,4-D a distance of 22 feet on both sides of the highway shoulder. This killed all broad-leafed weeds and grasses on the backslope area as well as on the shoulder where the weeds cut into sight distances and decreased the safety of the road.

The rigs, each operated by two maintenance men, are similar. Each consists of a Ford chassis, a 500-gallon storage tank, a 22-foot spraybar with snivvies on 24-inch centers, and a Gorman-Rupp 2-inch pressure pump driven by a Wisconsin gasoline engine. The entire rig is pulled along the road by one of the district's Ford 1½-ton dump trucks.

Each machine also is equipped with a small hand-cranked hose reel which is connected to the main pumping system. This can be used in place of the spraybars around bridge abutments, guardrails, and similar structures. When the hose is being used, shutoff valves in the spraybar line permit the bar to be by-passed.

The larger-size Gorman-Rupp pressure pump on each machine was added in the Grand Junction shops of the Colorado Department of Highways to allow more pressure to be exerted through the spraybar. This spraybar is spring-mounted, and when the rig is being used, the bar can be quickly raised to clear highway signs and other obstructions along the route being sprayed.

A few days after spraying, a good weed kill was visible along the highway roadside. Once this big job was finished, it was relatively simple for Allis-Chalmers and Toro mowers to keep the remainder of the 200-foot-wide rights-of-way clear throughout the summer. This work has been going on since about June 15, and when the first winter snows begin to fall, the Grand Junction district will have a clean right-of-way. THE END



Final step, laying the hot-mix Texaco Sand Asphalt wearing surface, in widening and strengthening five miles of U. S. Route 258 in Virginia.

How Virginia modernized an out-of-date highway

Used by increasingly heavy truck traffic between tidewater Virginia and North Carolina, this 18-foot Virginia highway had become obsolete. How the State Highway Department widened and strengthened the narrow, rigid pavement will interest other engineers.

A "black base", consisting of hot-mix Texaco Asphaltic Concrete, was laid three feet wide and eight inches thick on both sides of the old pavement. This was followed by a binder course of finer graded Texaco Asphaltic Concrete, laid 24 feet wide in two layers. To complete the modernization project, a wearing surface of hot-mix Texaco Sand Asphalt was constructed approximately 1½ inches thick.

An 85-100 penetration Texaco Asphalt was used in the "black base", the asphaltic concrete binder course and the sand asphalt wearing surface. Like all Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils, it is produced from scientifically selected crudes. The uniformly high quality and dependability of these products have earned and held the confidence of America's road builders for more than 50 years.

Two helpful booklets covering all types of asphalt road and street construction can be obtained without obligation by writing our nearest office.



CONTRACTORS

Brown Paving Co., Lexington, N. C.
J. R. Ford Co., Inc., Lynchburg, Va. (asphalt)

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17
Boston 16 • Chicago 4 • Denver 1 • Houston 1 • Jacksonville 2 • Minneapolis 3 • Philadelphia 2 • Richmond 19

TEXACO ASPHALT

For more facts, use Reader-Reply Card opposite page 18 and circle No. 202



Demolition crews remove the penthouse on the roof of the old building prior to erection of new steel for the additional six stories. The American guy derricks will handle new steel.

Original 10-story steel framework is strengthened prior to

Adding six stories to existing building

by WILLIAM T. DARDEN, assistant editor

Building construction is anything but a novelty these days in New York City; fully a score of multistory office buildings and more than twice as many apartment buildings are currently pushing their way into the Manhattan skyline.

But at one midtown construction site—the entire east blockfront on Madison Avenue between 58th and 59th Streets—where a $12 million office building is being erected to replace an old 10-story structure, some unusual procedures are being followed. The steel framework of the old building is being retained and incorporated into the new 16-story structure, and demolition crews are working literally alongside erection crews.

To complicate the project, 19 shops and restaurants on the ground floor of the old building are continuing to do business during construction operations. This means not only that their customers must be protected from falling objects and provided clear access to the shops, but that within the old building the water, air conditioning, and power equipment and lines that serve these ground-floor tenants must be maintained.

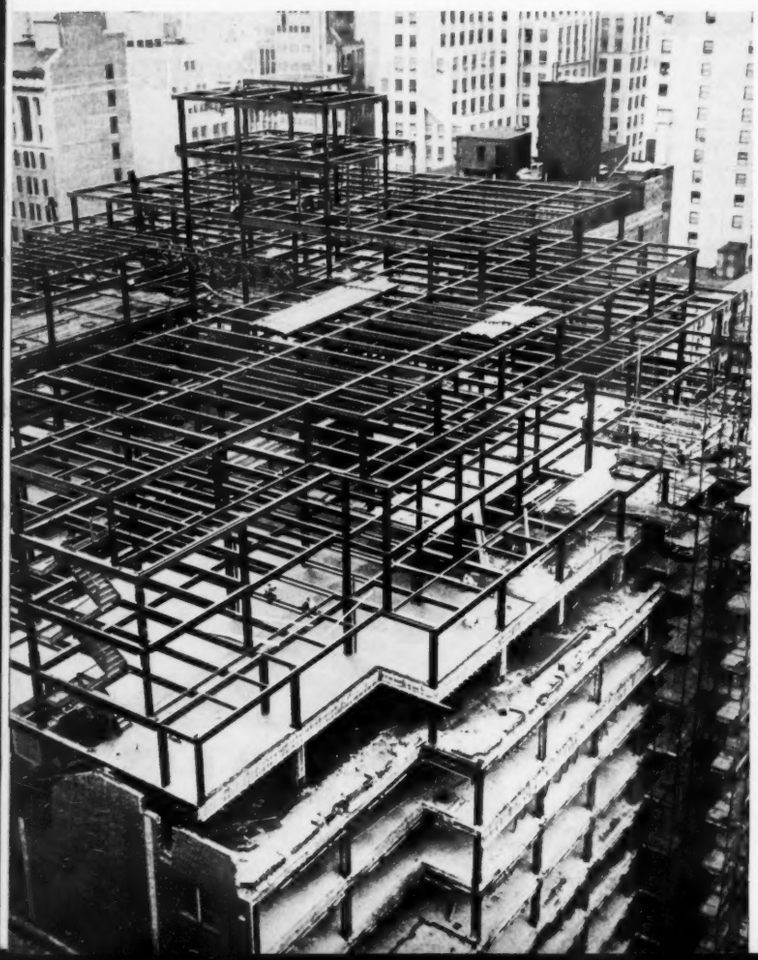
Diesel Construction Co., Inc., of New York City has the main contract for the job. Interior demolition and removal of the masonry facade on the existing building have been subcontracted to Beaver Concrete Breaking Co., Inc., Maspeth, Long Island, N. Y., while Harris Structural Steel Co., New York City, is reinforcing the old framework and erecting steel for the new stories. Concrete work has also been subcontracted.

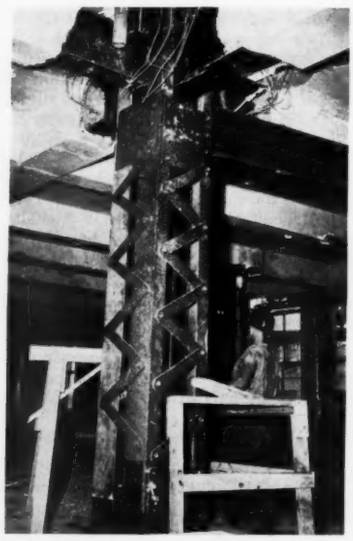
The entire 16 stories will be faced on three sides with aluminum panels, which are being furnished and installed by General Bronze Corp., New York City. When completed, the building will provide a total of 400,000 square feet of office space.

Initial work was begun at the site last March, and the new building is

(C&E Staff Photos)

With new steel for the six additional floors and penthouse in place, floor-slab finishing operations occupy concrete crews at the eleventh-story level. Note lower stories stripped of exterior walls. The entire structure will be faced with aluminum panels.







At left, a close-up of a reinforced column on the tenth floor of the existing building. The latticework ties together 9 × 4 × ½-inch corner angles, and the entire reinforcing jacket is bolted to the column. Note the angles carried through the ceiling to the roof. A two-man crew (right-hand photo) uses a Chicago Pneumatic impact wrench to tighten bolts on column reinforcing.



Forming for floor-slab pours at the fifth floor of the built-up rear section of the building. Conver form ties and hangers hold 1 × 4 ribs which support the 1 × 8 form planks. Steel erection goes on just above this floor.



A Whiteman Power Buggy is used to carry away debris on the third floor of the existing building. Normally used to deliver concrete, these powered carts speed demolition work.

expected to be ready for occupancy by March of 1956.

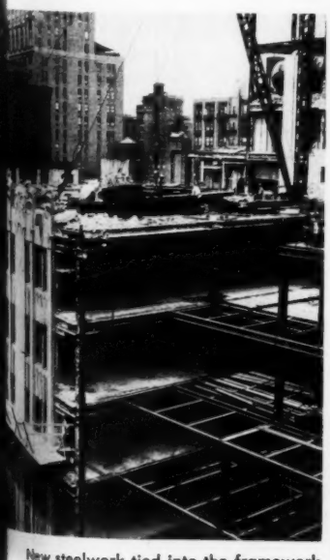
Reinforcing old steelwork

The decision to incorporate the old steel framework in the new building was influenced by the fact that the old structure, erected 25 years ago on concrete-filled steel piles, was designed to accommodate additional stories at a future date. The original piling, therefore, is proving adequate for the additional load. Only building columns and roof beams on which new setback columns bear required reinforcing.

About two-thirds of the old building columns were reinforced by Harris crews. This reinforcing consists of 9 × 4 × ½-inch angles connected by steel latticework. Heavy splice plates bolted to the column help to transfer the load, so that the column and its jacket of reinforcing act as a single unit in carrying the building load to the piles. Reinforcing runs from the third, fourth, fifth, or seventh floor to the 11th floor, where new billets bear on both the column and the reinforcing.

A 10-foot setback at the 11th floor means that new columns must bear on the old roof beams rather than directly on the old exterior columns. This meant that the roof beams would require considerable strengthening; consequently, 20-foot-long stringers

(Continued on next page)



New steelwork tied into the framework of the existing building brings the section at right—originally only four stories high—to the level of the old roof. An American guy derrick handles new steel members.

For more facts, circle No. 203→



Fast, efficient Whiteman Power Buggies poured 33,000 yds. of concrete on bridge, running on movable platforms.



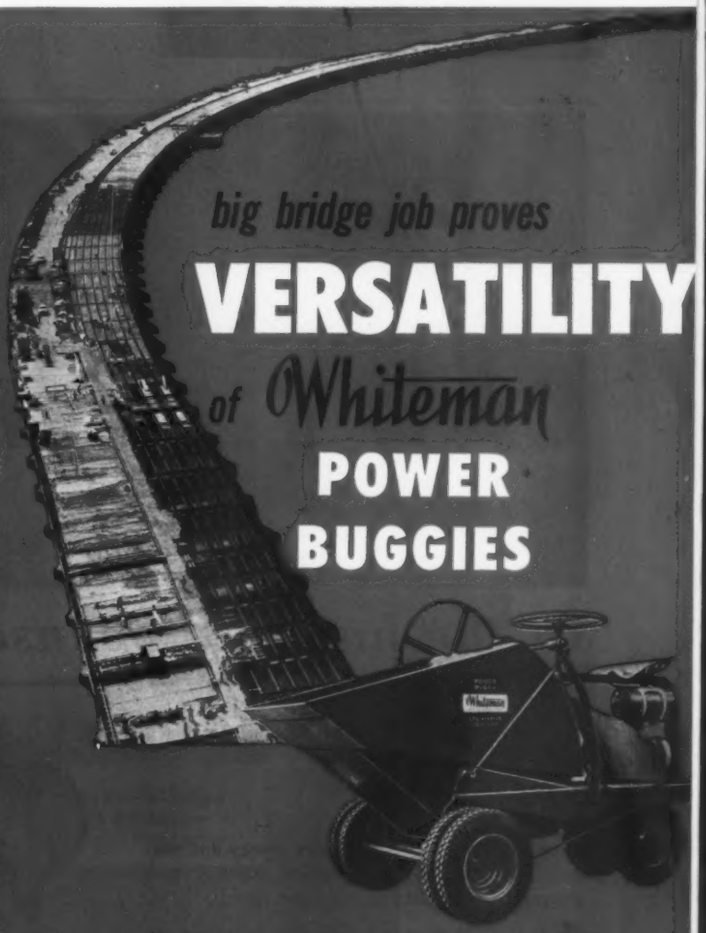
Double walers are hauled to front of forming operations on Whiteman flat bed Power Buggies to speed job.



Here a Whiteman Power Buggy pulls a trailer load of reinforcing bars from supply depot on bridge to forming crews.



Portable runways were built ahead over mall to let Buggies deliver materials anywhere. Here a Buggy hauls a trailer.



big bridge job proves

VERSATILITY

of Whiteman

POWER BUGGIES

Building New York's three mile long, six lane Tappan Zee bridge in record time was possible to a large extent through the ingenious use of 14 Whiteman Power Buggies. These fast, rugged, tireless workers not only placed 33,000 yards of concrete, but proved their amazing versatility by also hauling lumber, forms, reinforcing steel, and innumerable other materials . . . keeping the job rolling at a speedy pace.

Consider the many material-handling jobs that Whiteman Power Buggies can do for you faster, more efficiently, more economically. Three body types for various needs. Or we will design a special body to meet your particular requirements. Call your Whiteman distributor or send coupon today.

Joint general contractors for the deck work: Gardinier Construction Co., West Shore Concrete Co., and Euclid Contracting Corp. Whiteman Power Buggies supplied by Contractors Supply Corp. Photos courtesy Construction Methods & Equipment.

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Heavy crosstown traffic on busy 59th Street crowds delivery of ready-mix concrete to the construction site. Brought to the job in Jaeger truck mixers mounted on Mack trucks, the concrete is chuted to Jackson hand carts and lifted to upper floors in the Chesebro-Whitman hoist tower.

(Continued from preceding page)

were placed directly beneath the beams and bolted to the columns.

High-tensile bolts were used to fasten both reinforcing steel and the new steelwork on the project, with ⅞ and 1-inch sizes being used on the reinforcing and ⅞-inch units being used to fasten the new steel-work. Empire, Bethlehem Steel, and U. S. Steel bolts were used on the job.

Chicago Pneumatic impact wrenches were used to tighten the bolts, and Ammco torque indicators were used to test the fastenings. The fact that these bolts eliminate noise, much equipment, and considerable erection time accounts for their use on the job.

Structural steel fabricated by Harris at New Market, N. J., was shipped by railroad to New York City and then trucked to the building site in Mack trucks. Reinforcing steel was trucked directly from New Market.

Because one section at the rear of the old building originally was only four stories high, erection of new steel was begun here to first bring the framework in this section to the old roof level of the rest of the existing structure. An American derrick with 100-foot mast and 90-foot boom handled the steel. Power for the rig was furnished by an American 25-hp hoist driven by a Waukesha gas engine.

Two other American guy derricks with 80-foot masts and 75-foot booms placed structural steel for the six additional stories built up from the roof of the old building. Powered by Lidgerwood double-drum hoists which were driven by Waukesha gas engines, these rigs picked up steel from the Mack trucks parked in the street below. Two-man bolting crews made the fastenings after the steel members were positioned.

Concrete work

Forming for concrete floor pours was started about the middle of June, and the subcontractor is working to complete the job sometime next month. Floor slab forms consisted of 1×8 wood planks and 1×4 ribs tied with Conver form ties and hangers.

Ready-mix concrete, being furnished by Colonial Sand & Stone Co., Inc., New York City, is delivered to the site in Jaeger transit mixers mounted on Mack trucks. Jackson hand carts, used to transport the concrete, are filled from the truck mixers and hoisted to the pour in a rented Chesebro-Whitman hoist tower. A Lidgerwood 125-hp electric-powered hoist drives the hoist elevator, which accommodates two concrete carts or three wheelbarrows. Floor slabs are being hand-vibrated and finished with Whiteman rotary floating-finishing machines and hand trowels.

With this setup, the subcontractor is able to place about 90 cubic yards of concrete in an average day.

Paradoxically, the only two powered carts on the project are not being used by the concrete crews. Two Whiteman Power Buggies are being used by the demolition crews to transport bricks and other debris, which is chuted down to trucks in the street through a metal tube. The wreckers are also using a Hough Model HA Payloader to transport debris on the floors.

All operations—demolition, steel erection, concrete-placing, and exterior facing—are going on at once on this project. Beaver's crews wreck three or four bays, the necessary reinforcing or new steel is put in place, concrete work is begun, and General Bronze fastens hangers to the exterior in preparation for installing the aluminum facing panels.

Two new shafts will bring to 11 the number of elevators which will serve the 16-story building. All new elevator cars will be installed. The entire building will be air conditioned.

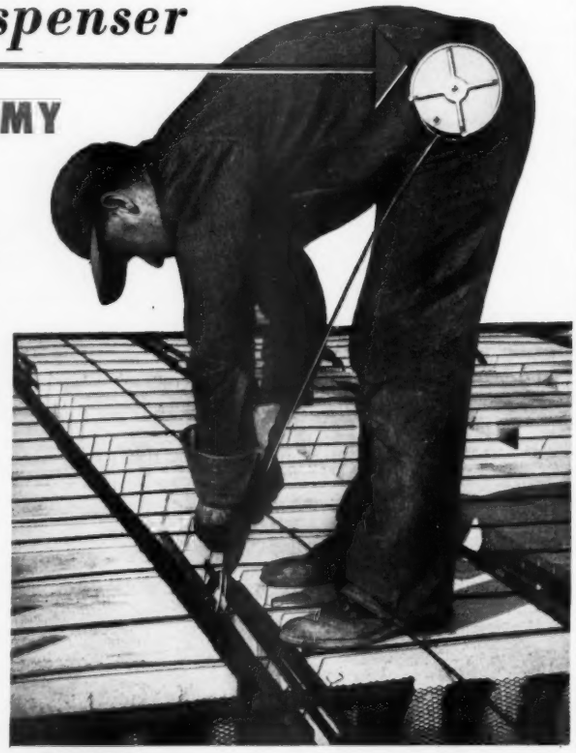
A colorful canopy over the sidewalk on the three street sides of the build-



CAL-TIE® WIRE

in the handy dispenser

FOR GREATER ECONOMY



Here's the modern way to save money and materials in your re-bar tying operations . . . and ensure greater safety at the same time.

Using Cal-Tie Wire on handy reels is much more economical than the old-fashioned shoulder coils. Waste from excessive cut ends is reduced . . . waste incurred when coils are put down and forgotten is eliminated.

Light and compact, the wire on reels can be used in cramped quarters. Kinking and tangling of wire does not occur. Worker efficiency is kept high. Cal-Tie Wire on the handy reel dispenser makes tying much safer, too. Workers can't be thrown off balance by coils catching on protruding objects. Loose ends which might trip workers or get in their eyes are eliminated. Scratches and subsequent infections are prevented.

Try Cal-Tie Wire on reels on your next project. And remember to specify Cal-Tie Wire—produced by CF&I from ore to finished wire. Available in gauges 14 through 20, Cal-Tie Wire coils fit any standard tie wire dispenser. Contact our sales office or the nearest CF&I distributor for full information.

CF&I CAL-TIE® WIRE

THE COLORADO FUEL AND IRON CORPORATION

3463

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For more facts, use Reader-Reply Card opposite page 18 and circle No. 204

ing replaces the usual type of crude unpainted sidewalk bridge found on building jobs. All project offices are on the fourth floor of the building, thus eliminating contractors' shacks. In addition to providing fluorescent-tube lighting for the sidewalk area under this canopy, the contractor has installed signs at the street overhang carrying the names of the various stores operating on the street floor. These ground-floor stores will be reconstructed after the construction on the rest of the building is completed.

Personnel

Sylvan and Robert Bien, New York City architects, designed the new building, which is being constructed for Moses Ginsberg & Sons, New York City. C. A. Morse, vice president in charge of construction for Diesel Construction Co., is supervising the project, and Mark Sagal is general superintendent for Diesel. Erwin S. Wolfson is president of Diesel.

Mike Caravella is superintendent of Harris's erection crews, and John Samson is in charge of Beaver's demolition crews.

THE END

North Carolina to regulate driveway construction

In an attempt to control driveway construction by business establishments along its highways, the North Carolina State Highway and Public Works Commission has put new standards into effect.

The new entrance standards, already in effect, require anyone planning a driveway on a major artery to apply for a construction permit from the highway district engineer. The code, aimed at reducing the number of accidents caused by slow-moving traffic entering a high-speed highway from a commercial driveway, specifies that channelizing islands be built for entrances and exits on highways.

No new driveway will be permitted at an intersection. Instead, it must be constructed so that it first turns autos into the main traffic stream or a side street.

Copies of "Minimum Standards for Entrances to Highways from Commercial Establishments", the commission booklet giving details of the new standards, are now in the hands of all division and district highway engineers, as well as oil jobbers in the state.

New soil-cement film

The Portland Cement Association has released a sound-and-color film, "Soil-Cement for Low-Cost Paving," dealing with the properties and engineering characteristics of soil cement and its use in various paving jobs. There is also a brief section on construction. The running time of the film is 21 minutes.

Engineering groups and student highway-engineering groups may secure the 16-mm film without charge upon application to the Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill.

Lightweight power trowel

■ Stow Mfg. Co. has put on the market a new lightweight 24-inch rotary trowel, Model G24, recommended especially for the smaller contractor.

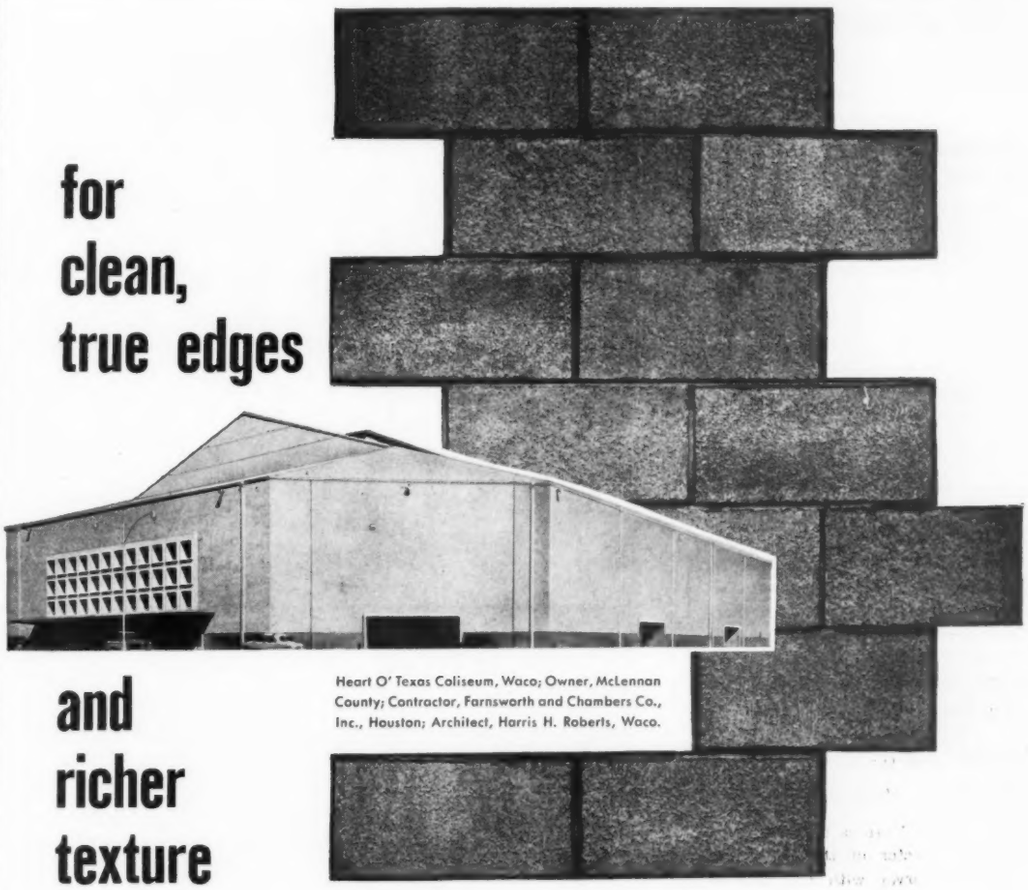
The G24 Roto-Trowel weighs only 69 pounds and can be moved around the job by one man. Its light weight also makes it possible to put the trowel in use soon after concrete is laid. Power is provided by a Briggs & Stratton engine rated at 2.2 horsepower.

A stationary guard ring is not only a safety feature, but it allows the operator to work right up to walls etc.

For further information write to Stow Mfg. Co., 40 Shear St., Binghamton, N. Y., or use the Request Card at page 18. Circle No. 132.



Here is the 24-inch Stow Roto-Trowel. A deadman control stops the machine from rotating the instant the operator lets go of the handle, but does not stop the engine.



for clean, true edges and richer texture

Heart O' Texas Coliseum, Waco; Owner, McLennan County; Contractor, Farnsworth and Chambers Co., Inc., Houston; Architect, Harris H. Roberts, Waco.

...concrete block made with DURAPLASTIC*

Over ninety-eight thousand concrete blocks went into the building of Waco's Heart O' Texas Coliseum. The job was a big one, calling for good looks on a large scale. That's why concrete block made with Atlas Duraplastic air-entraining portland cement were used.

A good choice, too. Because Duraplastic makes a more compact, more cleanly formed block with greater resistance to the passage of water. For outstanding durability and good appearance, use Duraplastic-made block on your next project.

Use Atlas Duraplastic cement in your regular concrete work, too. Aids proper placement and increases durability. Requires no unusual changes in procedure. Sells for the same price as regular cement. Complies with ASTM and Federal Specifications. Write for free descriptive booklet.

UNIVERSAL ATLAS CEMENT COMPANY
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*"Duraplastic" is the registered trade-mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

CE-D-177

AIR-ENTRAINING PORTLAND
Atlas® Duraplastic Cement
MAKES BETTER CONCRETE AT NO EXTRA COST

UNITED STATES STEEL HOUR—Televised alternate Wednesdays—See your newspaper for time and station.
For more facts, use Reader-Reply Card opposite page 18 and circle No. 205

NAMES IN THE NEWS



Henry Aaron, the new highway and airport engineer for the Wire Reinforcement Institute, Inc.

Highway, airport engineer named by wire institute

The former C. A. A. chief of airports technical branch, Henry Aaron, is the new highway and airport engineer of the Wire Reinforcement Institute, Washington, D. C. He will work with highway and airport engineers throughout the country, to develop standards and specifications for the reinforcement of portland-cement concrete pavement with wire fabric.

A civil engineering graduate of George Washington University, Mr. Aaron joined the U. S. Bureau of Public Roads in 1924, and from 1933 to 1935 worked as technical advisor to the Argentina Federal Highway Department for the bureau. After three years service as a public works officer in the U. S. Navy, he served briefly with the bureau, then joined the Civil Aeronautics Administration.

Coast and Geodetic Survey has Adm. Karo as director

H. Arnold Karo is the newly appointed director of the Coast and Geodetic Survey with the rank of rear admiral. Before his appointment by President Eisenhower, Adm. Karo was chief of the chart division with the rank of captain.

Adm. Karo entered the commissioned service of the Coast and Geodetic Survey in 1923.

Gen. Weaver to head beach-erosion board

Brigadier General Theron D. Weaver has been recalled from retirement to take the post of president of the Beach Erosion Board of the U. S. Army Corps of Engineers. As president of the board, Gen. Weaver will head the government's official agency studying beach erosion and shoreline protection as related to economic and military needs. The board compiles reports from around the world and has research facilities in Washington, D. C.

Hammond to open offices as dam design consultant

John J. Hammond, former chief of the U. S. Bureau of Reclamation's Dams branch in Denver, Colo., engineering offices, is planning to open offices as an engineering consultant on the design of dams in this country and abroad.

Mr. Hammond, who retired as chief of the dams branch in August, spent most of his 39 years of government service supervising the design of virtually every concrete dam constructed by the bureau, including those for Grand Coulee, Hoover, and Shasta dams. Among other dams designed under his direction are Hungry Horse Dam in Montana, Wheeler Dam for the Tennessee Valley Authority, and Madden Dam for the Panama Canal Zone.

Joins consulting firm

Charles R. Waters has joined the affiliated consulting engineering firms of De Leuw, Cather & Co. of Chicago and De Leuw, Cather & Brill of New York. He will serve as a special consultant to the first named firm and will be an associate of the second. He is in charge of the recently organized Buffalo, N. Y., office. Mr. Waters was formerly a district engineer for the New York State Department of Public Works in the Buffalo district.

Charles Simkin & Sons reorganizes departments

Supervising personnel have been named for newly created departments in Charles Simkin & Sons, Inc., engineering contractors of Hopelawn, N. J. Joseph Dobransky is now field superintendent, Alexander Sage is vice president in charge of engineering, Robert Solmor is chief piping engineer, and Edward Greenwald is chief air-conditioning engineer. The appointments have been made to speed the handling of estimates and bids, and to facilitate job control.

WHERE THERE'S DUST ... MARFAK'S A MUST



DON'T LET dust ruin your bearings—give them complete protection, longer life with *Texaco Marfak*. This world-famous chassis lubricant stays *in* the bearings, keeping dust and dirt *out*. It guards against wear and rust, prolongs bearing life, reduces maintenance costs.

In wheel bearings, use *Texaco Marfak Heavy Duty*. It seals out dirt and moisture, seals itself in — assuring safer braking and protection that lasts for thousands of extra miles, with no seasonal change needed.

More than 555 million pounds of Texaco Marfak have been sold. For transmissions and differentials, use *Texaco Universal Gear Lubricant EP*. Gears will run better, smoother, longer . . . at lower maintenance cost.

On crawler mechanisms, *Texaco Track Roll Lubricant* affords constant protection against mud and moisture, keeps bearings rust-free, checks wear.

TEXACO SIMPLIFIED LUBRICATION PLAN. Saves time and money, eliminates errors, reduces lubricant inventory — because *no more than six* Texaco Lubricants are needed to handle all major lubrication. Get complete details from your Texaco Lubrication Engineer. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

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TEXACO STAR THEATER
starring
JIMMY DURANTE
on television . . .
Saturday nights, NBC.

TEXACO

CONTRACTORS AND ENGINEERS



D. W. Lewis, chief engineer of the National Slag Association.

Chief engineer named by National Slag group

A former research engineer for the Indiana Joint Highway Research Project and associate professor of highway engineering at Purdue University, D. W. Lewis has joined the National Slag Association, Washington, D. C., as chief engineer. He will serve the association principally on engineering matters involving slag as a mineral aggregate.

During his nine years on the staff of Purdue University, Mr. Lewis was engaged in research on aggregate and concrete. He holds membership in the American Concrete Institute, the American Society for Testing Materials, the Highway Research Board, and the American Society of Civil Engineers.

Kirby is chief engineer

P. B. Kirby has been appointed chief engineer for the Structural and Civil Engineering Division of Albert Kahn Associated Architects and Engineers, Inc., Detroit, Mich. Mr. Kirby has been with the firm since 1933. A graduate of the University of Michigan, Mr. Kirby is a member of the American Society of Civil Engineers, The American Concrete Institute, and the American Society for Testing Materials.

Contracting firm names a new vice president

The board of directors of Booth & Flinn Co., Pittsburgh, Pa., has elected L. S. Stanley vice president. Mr. Stanley, who has been contracting engineer for the firm for over two years, will continue to supervise the engineering of industrial foundations and other heavy construction, and will also be engaged in obtaining new business.



L. S. Stanley, the newly elected vice president of Booth & Flinn Co.

Mr. Stanley joined Booth & Flinn in 1930 as a field engineer, and has served as superintendent, designer, and office engineer.

M-C&S elects Harvey executive vice president

Robert E. Harvey last month became executive vice president and assistant to the president of Merritt-Chapman & Scott Corp., New York, N. Y. He was formerly executive vice president in charge of the company's steel division and executive vice president and general manager of Newport Steel Corp., Newport, Ky., a subsidiary of M-C&S. Mr. Harvey started with the firm in 1954, and last year was named to the board of directors. His position in the Newport Steel Corp. and the M-C&S steel division has been assumed by Alfred P. Miller.

Crow heads builders group of public school committee

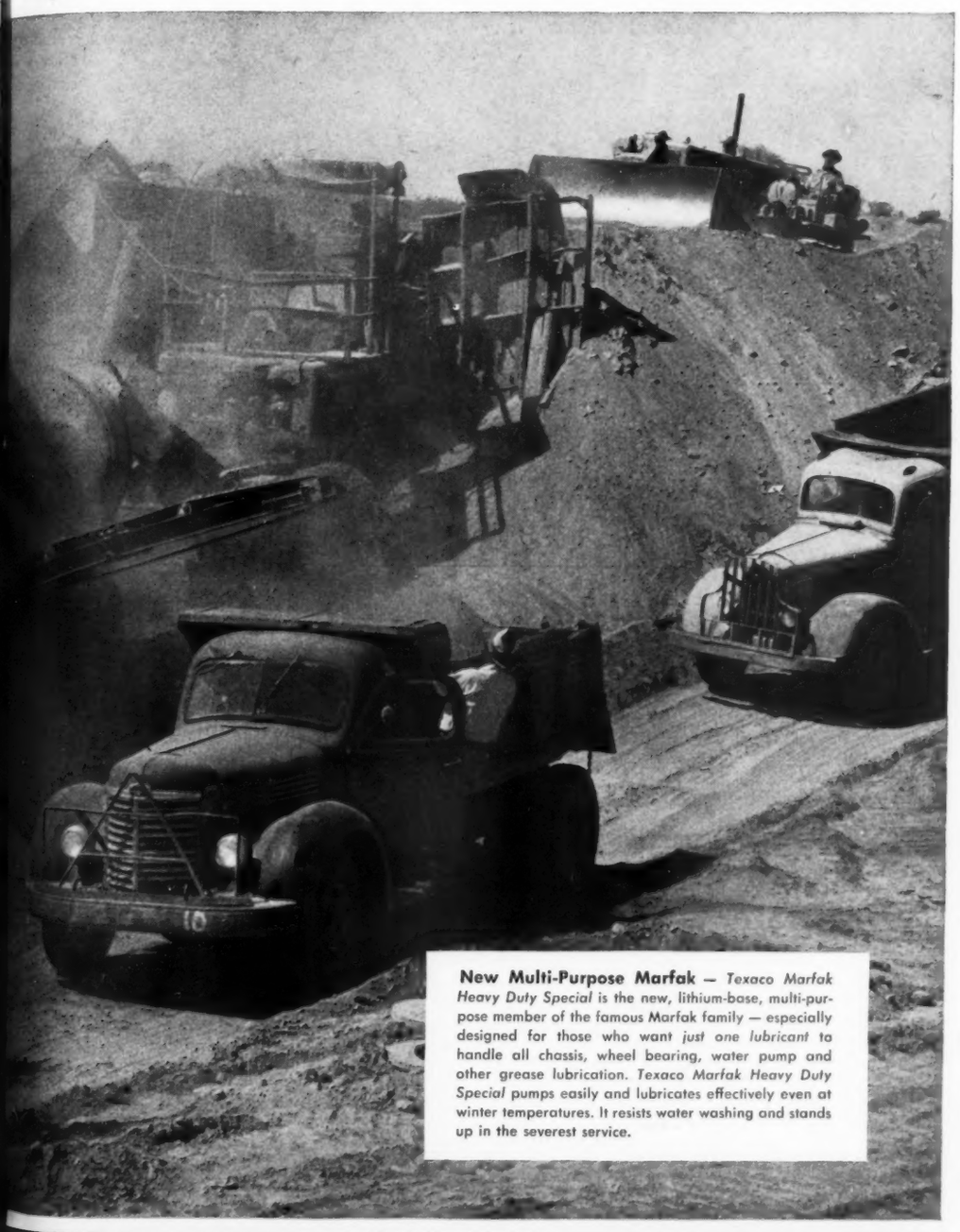
Ralph L. Crow, Jr., vice president of the William L. Crow Construction Co., New York, N. Y., has been appointed construction industry chairman of the New York State Citizens Committee for the Public Schools.

The committee is a nonprofit organization designed to aid the more than 1,000 public schools throughout New York in such matters as teacher and housing shortage, and increased enrollment.

Public works department in N. Y. appoints Gibbons

Eugene F. Gibbons last month became chief engineer of the New York State Department of Public Works, replacing George L. Nickerson who returned to his former position as district engineer of district No. 1.

Mr. Gibbons, has worked on the New York City subway system, and on expansion projects at the Brooklyn Navy yard, Newark Airport, the Naval Depot at Lake Denmark, N. J., and the Bethlehem Ship Yard in Staten Island, N. Y.



For more facts, use Reader-Reply Card opposite page 18 and circle No. 206

Shot-creting lowers cost of reinforced-concrete walls



A sand-cement mix is shot against welded-wire fabric and insulation board to a depth of 4 inches. The insulation, serving as a form, remains in the completed wall between exterior and interior concrete.

By shot-creting concrete over a wall skeleton of steel welded wire fabric and insulation board, a Virginia contractor is building concrete walls without using forms, saving forming costs and the time and labor required by the conventional method. The shot-crete method, used by Merle H. Gillespie, Jr., for walls in 44×24-foot homes in Timberlake Estates, a housing development in Dranesville, Va., can be used equally well on practically any reinforced-concrete wall for small structures. The average per foot cost of a wall on this project comes to $10, while the average per foot cost of a wall in this section of the country runs between $12 and $16.

To finish off the walls, Gillespie's crews are using templates cut in a pattern of Tennessee crab orchard stone, field stone, or cut limestone, together with a cutting tool which forms simulated mortar joints in the concrete. The tools and processes developed for this job by Gillespie either have patents pending, or on file.

Assembling wall skeleton

Starting work on a wall, Gillespie's crews take ¾-inch insulation board and notch it into a 2×7¼-inch wooden top plate which is recessed 12 inches into the foundation of the structure. Then 4×4 6/6 welded-wire fabric reinforcing for the wall is secured about 1½ inches away from the insulation by 12-inch-long rods, ⅜-inch in diameter, which project through the top plate and up from the foundation. The fabric is also secured by cut nails located between these rods. Overlapping and fastening the fabric with double laps at the corners, both inside and out, gives additional security.

This complete assembly—insulation, reinforcing, and top plate—is then set into position with the aid of wooden triangular jigs and walers which back up the insulation board. Gravity and friction hold the jigs steady on the ground to resist the force of the concrete as it is applied to the exterior of the insulation.

The layer of concrete is built up to a 4-inch thickness over the wall skeleton by both a CMC Jetcreter and a shop-built unit, together with a gun designed by Gillespie. The Jetcreter has a dry material capacity of 5 yards per hour, and in-place capacity is 3½ to 4 yards per hour. Both the mixer and gun work continuously.

Gillespie is using one bag of cement to 4 cubic feet of sand in the mix, and water is being added at the gun nozzle in a ratio of 2½ to 3 gallons per bag of cement, depending on the moisture content of the sand. The dry materials come through 150 feet of hose at about 40 psi, and at the nozzle water pressure is about 15 psi greater than that of the mix. Concrete comes out of the nozzle in a vapor, and

TWIN-POWER "EUCS" ON



Power to move the earth! A Euclid TS-18 Scraper with two engines and total of 494 h.p. is push loaded by a TC-12 "Euc" tractor powered by two 194 h.p. engines—a total of 882 h.p. at work. Because of the difficult sandy conditions, Western's scrapers are equipped with extra power for the tractor drive axle—300 h.p. rather than 194 h.p.

Euclid Twin-Power Provides Unequalled

WORKABILITY

Twin-Power—the use of two engines driving separate axles—was pioneered in the earth moving field by Euclid nearly 10 years ago. It provides larger capacity with power equal to or greater than single engine equipment . . . uses power and drive components that have proved their performance in other equipment on hundreds of jobs. Torque converters and semi-automatic transmissions assure easy operation and a smooth flow of power to meet all job conditions.



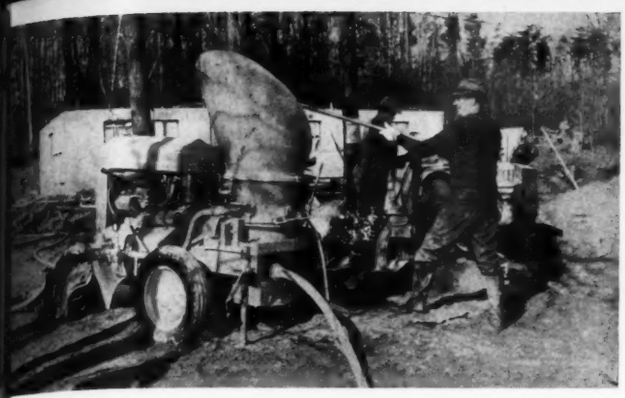
This TS-18 is one of Euclid's newest scraper models. It has a struck capacity of 18 cu. yds. . . . standard power is two 194 h.p. diesels with Torqmatic Drives. Western Contracting is using 10 of these "Euc" scrapers on the Indiana Turnpike.

There's twin power in these 50-ton Rear-Dumps too! Six of these big units, first used by Western on Ft. Randall Dam, are working under an 8 yd. dragline. With a total of 600 h.p. this "Euc" has plenty of power and traction to move capacity loads through loose sand and tough hauls.



"Performance far above expectations" is the way personnel on Western's job describe the overhung engine Twin-Power Scraper push loaded by the new Euclid Twin Crawler.





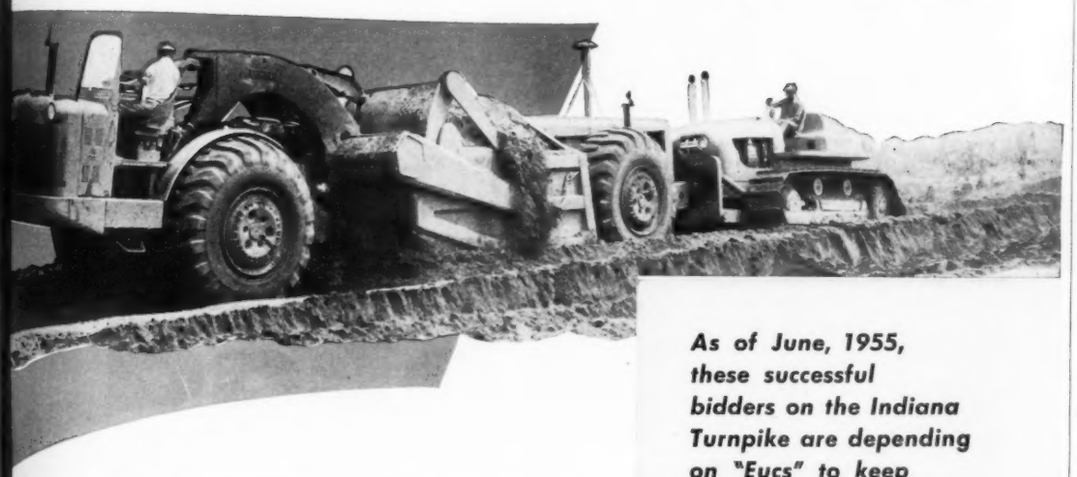
◄ A workman feeds material to the CMC Jetcreter. A continuous-process machine, it can handle 5 yards of dry material an hour, and places 3½ to 4 yards an hour for reinforced-concrete walls.

Insulation board is held in position by jigs which resist the force of the concrete being applied to the wall, while stringers tie the tops of opposing walls together for additional rigidity. ►



WESTERN CONTRACTING'S

7 million yard Indiana Turnpike job!



Western Contracting Corporation is grading 27 miles of the new Indiana Turnpike east of Elkhart. About 7 million yards must be moved by November, 1956—work is currently on a two 10-hour shift basis six days a week. It's a big job—one that demands dependable equipment that can move big loads fast . . . the kind of job where Euclid Twin-Power performance really pays off.

On one section of their contract Western is using five TS-18 Euclid overhung Twin-Power Scrapers and 2 "Euc" TC-12 Twin Crawler tractors. Working in sand, the "Euc Twins" pick up loads of 15 bank yards or more and make round trips of a mile every 5 minutes, each averaging 180 bank yards production per hour. They travel at speeds up to 30 m.p.h. with full payloads and make the return trip over good haul roads with a top speed of 35 m.p.h.

Five other Euclid Twin-Power Scrapers and two additional TC-12 tractors are making the dirt fly on another section of Western's contract. On still another part of the job six 50-ton "Eucs" are hauling from an 8 yd. dragline. These Rear-Dumps, veterans of Ft. Randall Dam, are powered by two diesels having a total of 600 h.p. For complete information on the complete line of Euclid earth moving equipment or models suited for your jobs, call your Euclid dealer soon.

As of June, 1955, these successful bidders on the Indiana Turnpike are depending on "Eucs" to keep their jobs on schedule:

Arcole-Midwest Corp.
Chapin & Chapin
A. L. Dougherty
Peter Kiewit & Sons' Co.
D. R. Smalley & Sons
Suber & Co. and Ballenger Paving Co.
Union Building & Construction Corp.
Western Contracting Corp.
Winston Bros.

● ● ●

Again "Eucs" outnumber all competitive rubber-tired equipment combined on a big turnpike project!

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

GM GENERAL MOTORS

forms a plastic, dry mix as it is deposited around the steel fabric. When the concrete sets up, it develops a strength of 6,000 psi. The top 1½ inch of concrete is colored, and the remainder is left its natural color, so that the slots can be cut into the colored concrete to make it resemble any desired type of stone.

Interior walls

When the outside wall has been built up, the triangular jigs are removed and sheet aluminum foil is applied to the back of the insulation board with mastic. Concrete for the interior walls is applied over a lighter weight reinforcing, 6×6 6/6, which is positioned by fastening it to 14-inch, ⅜-inch-diameter dowels projecting down through the top plate. All necessary conduits are placed before shot-creting interior walls to a depth of 2½ inches.

As soon as the rapidly setting concrete has been built up for an interior wall, another tool developed by Gillespie is used to strike off the material. This consists of an 8-foot tubular steel frame, and a length of piano wire, resembling a huge cheese slicer. As tension is applied to one side of the frame, the piano wire tautens and acts as a cutting edge to level the concrete.

Basic walls for a three-bedroom home are being completed in a day and a half by Gillespie. Walls and the floor slab for a home take about 300 bags of cement and about 1,900 pounds of steel reinforcing.

The 1½-inch of colored concrete on exterior walls is being cut to simulate stone with two tools developed by Gillespie. The first is a 7×3-foot sheet of galvanized steel, slotted to form a stencil-like pattern of Tennessee crab orchard stone, field stone, cut limestone, or coursed ashler. This is placed over the wall while the pattern is traced onto the fresh concrete.

Then a tubular, thin steel cutting tool is used to gouge out the 1½ inches of marked concrete, exposing the darker colored, natural concrete underneath. The natural colored concrete shows up as mortar joints, while the light colored concrete stands out as natural stone.

The same technique has been used in the upper half of some of the structures, which have been cut to resemble V-joint siding. Other homes have the front doorway cut to resemble conventional paneling. THE END

←For more facts, circle No. 207



◄ This new Allis-Chalmers bottom-dump motor wagon, powered by a 280-hp diesel engine, has a 22-cubic-yard heaped capacity.



". . . dropped his orange."

New bottom-dump motor wagon hauls 22-yard heaped load

■ A new hydraulically operated bottom-dump motor wagon with 22-cubic-yard heaped capacity has been added to the Allis-Chalmers line of earth-moving machinery. Designated as the Model TW-360, this new unit is powered by an A-C 280-hp diesel engine providing four forward speeds and one reverse speed.

Officially rated at 17 cubic yards struck capacity, the new motor wagon has a 22-foot wheelbase and weighs 47,000 pounds. The wagon itself is 12½ feet long, 8 feet 5 inches wide at the top, and 11½ feet long and 5 feet 8 inches wide at the bottom. Wagon depth is 6¼ feet.

Engineering features emphasized by the manufacturer include two-speed hydraulic steering, a 24-volt electrical system, four-wheel air brakes, simple one-lever control of the discharge doors, and wider door openings. Operator comfort has also been stressed by way of increased leg room and greater visibility from the driver's seat.

The A-C diesel engine spearheads a power train said to offer more rim pull at all speeds for better hauling, dumping, and spreading performance; faster acceleration; easy shifting; and quick getaways. Forward speeds range from 3 to 20 mph; reverse speed is 3.1 mph.

Selective steering on the TW-360 is provided by a controlled-flow system through a single hydraulic valve. Low pump pressure reportedly gives good control for safe steering on the haul road, and full movement of the steering wheel is said to utilize full pump pressure for easy maneuverability in tough going. The direct electrical starting system permits key control of the complete ignition system.

When loaded, the TW-360 has a 22¼-inch front-axle clearance. The hopper has a 31½-inch ground clearance when empty, and a 29½-inch clearance when loaded. Over-all length of the motor wagon is 35 feet 10½ inches, and width is 11 feet 3¾ inches.

For further information write to Allis-Chalmers Mfg. Co., Construction Machinery Division, Milwaukee, Wis., or use the Request Card at page 18. Circle No. 142.

A four-year study in Connecticut shows that 7,770 traffic accidents might have been avoided if all rural highways met accepted standards.

GET SE

FOR Big Jobs Ahead

Genuine profit and efficiency gains await the contractor who gets set now for big jobs ahead. Here are a few of them:

More time to compare and analyze equipment more carefully and thoughtfully.

More time to work out financing details without delays.

A chance for your men to become more familiar (and more productive) with new equipment before it goes on tight-schedule jobs.

Opportunity to give new equipment its "shakedown" runs before big, fast-moving jobs begin.

Greater availability of equipment. Greater assurance of getting all front-end equipment you need before the rush starts.

Greater availability of erection men to work closely with your men in assembling and training.

P. S. "Get Set Now" is good advice on your present MARION equipment — review your replacement parts needs — get genuine MARION parts ordered now so you'll really be set for the jobs ahead.

MARION POWER SHOVEL CO. • MARION, OHIO

Gentlemen: Please send literature on sizes of machine checked.

MACHINE	SHOVEL CAP. CU. YD.	SHOVEL BOOM LENGTH (EFF.)	HANDLE LENGTH (OVERALL)	MAX. CRANE BOOM LENGTH	MAX. CRANE RATING IN TONS @12' RAD. EXCEPT AS NOTED CRAWLER	TRUCK	WAGON	HOE CAP. CU. YDS.	ASK FOR BULLETIN NUMBER
MARION 32-M	¾	19'-6"	16'-4"	80'-0"	*17½	*25	*25	¾	416
MARION 43-M	1	22'-6"	16'-4"	100'-0"	*27	*35	—	1—1¼	415
MARION 362	1½	24'-8"	18'-2"	100'-0"	37	—	—	1½—2	398-D
MARION 372	—	—	—	100'-0"	43	—	—	—	—
MARION 83-M	2	24'-8"	18'-2"	120'-0"	60	—	—	2—2¼	414
MARION 87-M	—	—	—	140'-0"	75	—	—	—	—
MARION 93-M	2½	27'-4"	20'-0"	120'-0"	80	—	—	—	397-E
MARION 101-M	3	27'-4"	20'-0"	120'-0"	84	—	—	—	417
MARION 111-M	4	32'-0"	23'-8"	120'-0"	169	—	—	—	402-B

*Rated at 10' Radius in Accordance with General Practice.

THIS COUPON can help you start to get set RIGHT.

NAME .....

COMPANY .....

ADDRESS .....

CITY ..... ZONE ..... STATE .....



This 6-foot adjustable rear blade mounts on all Ford tractors.

Versatile rear blade for Ford tractors

■ A versatile 6-foot adjustable rear blade, designed to mount on all Ford tractors and featuring tilt, pitch, and offset adjustments as well as blade angling, is announced by the Tractor and Implement Division of the Ford Motor Co.

The new blade angles 45 degrees each side of center with seven-hole stops, and tilts 40 degrees each side of center with nine holes. Blade pitch is adjustable to 10 degrees plus or minus by means of an adjustment at the rear of the blade, and intermediate pitch adjustments are made with the tractor's adjustable top link.

The manufacturer recommends use of the blade to grade small areas, including drives, roadsides, and building sites; to backfill ditches and excavations; to ditch for drainage; and to scrape snow.

Cutting width and over-all width are 72 inches, transport clearance with the blade raised by the tractor hydraulic system is 18 inches, over-all length is 48 inches, over-all height is 48 inches, and blade height is 17 inches. The blade weighs 360 pounds.

Accessories available are gage wheels, end plates, skid shoes, and ditching points.

For further information write to the Tractor and Implement Division, Ford Motor Co., 2500 E. Maple Road, Birmingham, Mich., or use the Request Card at page 18. Circle No. 102.

Corps speeds emergency aid in northeast flood areas

While civilians were still groping their way back to flood-devastated localities in the northeast United States following hurricane Diane, military and civilian engineering and construction specialists were on their way to the stricken areas from U. S. Army Corps of Engineer divisions and districts in the eastern, central, and southern states.

These men joined the more than 50 Corps field parties which had been deployed to emergency construction and other engineering work being carried on during the flood to save dams, bridges, and other facilities.

The Corps went into action immediately after being assigned the mission as the only agency organized and ready for work of the kind and scope required. The work of clearing debris, removing hazards to health and safety, and temporarily restoring public facilities is being done through existing division and district organizations engaged in construction projects in the flooded areas. Preliminary estimates of the Corps' job come to about $75 million.

Last stretch of Ohio pike is opened for traffic

The 241-mile Ohio Turnpike was opened for traffic along its full length on the first of this month, when barricades were removed from the last 219-mile stretch.

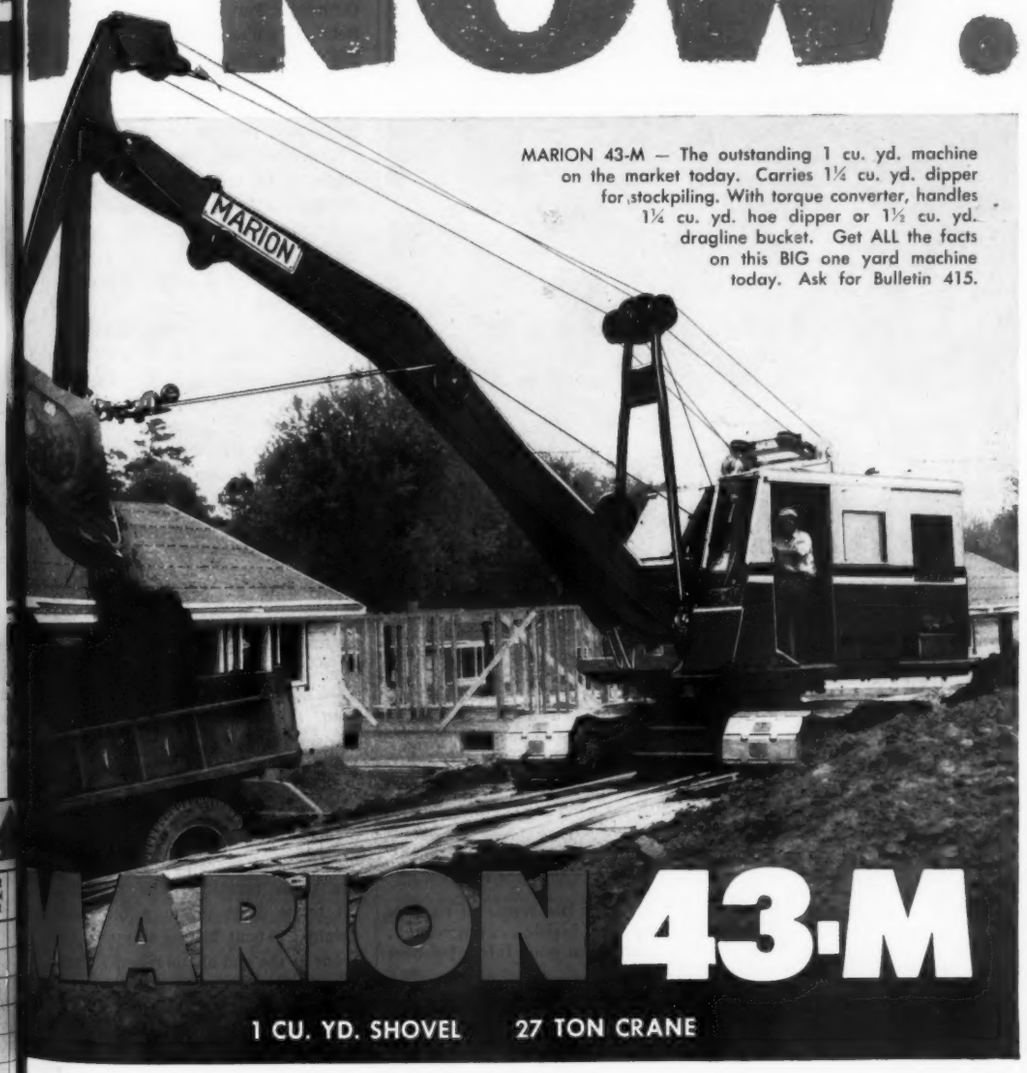
Combined with the easternmost 22 miles which have been opened since December, the road will enable motorists to travel across northern Ohio between the Ohio-Pennsylvania line an dthe Ohio-Indiana line at an estimated saving of three hours for automobiles and five hours for trucks.

Book on industrial waste

Operations and processes used to treat wastes before they are discharged into natural waters of municipal sewers are examined from a unit-operations point of view in a new book, "Principles of Industrial Waste Treatment". Written by C. Fred Gurnham, professor and head of the department of chemical engineering at Michigan State University, the book is designed primarily for students, but chemical and sanitary engineers should find it useful.

The 399-page book is available at $9.50 per copy from the publisher, John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y.

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The 44-ton ladder of the Calumet carries a 23-inch suction line and the 6½-foot diameter five-blade open-face cutter. The International TD-18 tractor and the remodeled Tournacrane on shore handle anchors for moving the pipe.

C&E Staff Photos



At the other end of the line, a contractor-built diffuser breaks the flow from the 20-inch line into a fan-like curtain. This separates sand from the water quickly and reduces fill erosion to a minimum.

Dredged hydraulic fill build

Working around the clock six days a week for less than ten months, a powerful hydraulic dredge placed more than 3 million cubic yards of sand embankment for an air-base runway grade.

This big hydraulic fill carries a 4,231 × 300-foot extension to the northwest-southeast runway at Offutt Air Force Base, near Omaha, Nebr., as well as a 5,600 × 75-foot taxiway, giving the big Strategic Air Command base a full 10,000-foot runway capable of handling the largest of jet and propeller-driven aircraft.

The huge dredging operation was sublet to La Crosse Dredging Corp., Chicago, Ill., by the joint-venture firms holding the $3,058,020 general contract for runway and taxiway construction, Peter Kiewit Sons' Co., and Condon-Cunningham Co., both of Omaha. But before La Crosse could start the fill, relocation work included in the improvement had to be completed on the flood plain of the Missouri River which adjoined the 30-foot high bench on which the old northwest-southeast runway was located.

Before the extension was built, the southeast extremity of the runway was at the top of a bank which dropped abruptly to the level of the flood plain. On this lower level were several farms, the main-line tracks of the Omaha to Chicago route of the Chicago, Burlington, & Quincy railroad, and a high-voltage electric-transmission line of the Loup River Power Co. Other lesser obstructions to be removed were two areas of sanitary fill which had been used for the disposal of rubbish from the base.

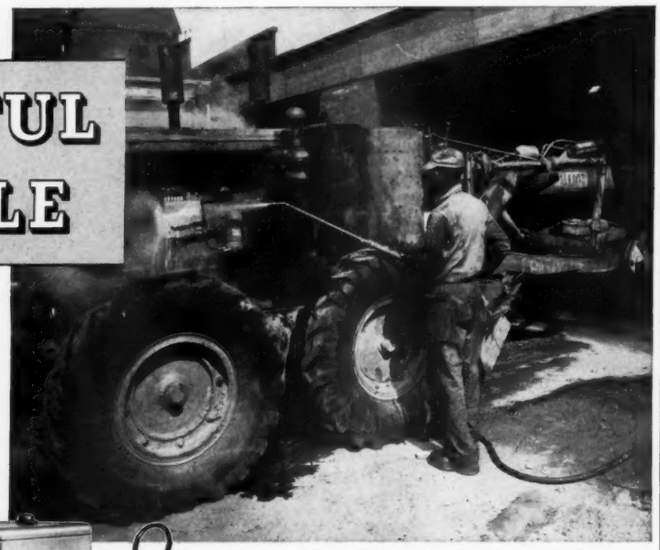
Removal of these obstructions from the plain permitted the hydraulic fill to be built up to a maximum height of about 35 feet to match the grade at the end of the runway. From this connecting point, the new grade slopes downward at a 1 per cent grade to meet the level of the lower plain. The 1,800-foot top width of the fill accommodates both a 300-foot-wide concrete runway and a 75-foot-wide taxiway. These are carried on two embankments separated by a V-shaped depression and having generous space on the far sides for safe operating clearances.

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Three million cubic yards of sand is pumped two miles to form embankment for runway and taxiway



The La Crosse Dredging Corp. 20-inch hydraulic dredge Calumet digs into the bank of soft river deposit material which the Armco discharge pipe, with the aid of a booster, carries to the fill area.

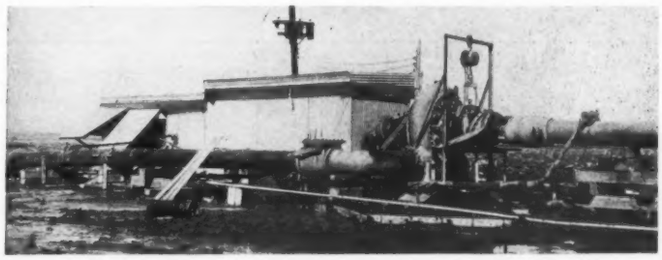
unway extension grade

plain were cut flush with the ground by crews with chain saws. Stumps were left in the ground. Two areas of sanitary fill, covering a total of about three acres and ranging from 4 to 6 feet deep, were removed by a subcontractor, Howard C. Roberts, Omaha. Roberts used a Caterpillar D6 tractor with a front-end loader and an Allis-Chalmers HD-5 tractor with Tracto-Shovel to load the old fill material into hired trucks hauling to a waste area.

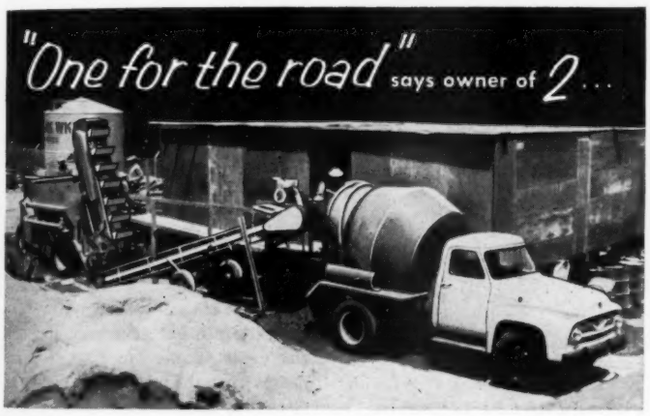
Relocation of the 3 miles of railroad track and the power lines was done after dredging started. John P. Abramson Construction Co., Des Moines, Iowa, did the railroad work under a contract with the CB&Q. Included in this contract were the placing of 303,000 cubic yards of embankment, construction of one major and six minor bridges, laying of 22,300 feet of track, and the supporting power and signal work. All of this was completed by the end of March, permitting trains to be routed around the site of the runway extension.

Removal of approximately two

(*Continued on next page*)



About 3,500 feet along the floating discharge line is a booster, built by Meckum Engineering Inc., Ottawa, Ill., which pumps the material the additional 7,000 to 10,000 feet to the fill.



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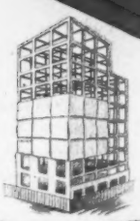
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(Continued from preceding page)

miles of 3-conductor high-voltage power line and the construction of three miles of new line was done for Loup River Power Co. by Elliott Construction Co., Inc., Omaha.

Dredge builds its own lock

Meanwhile, the 20-inch, electric-powered hydraulic dredge Calumet, brought up the Missouri River from Alton, Ill., had to be moved to the designated government-furnished borrow area. This was separated from the river by about three-quarters of a mile of dense trees and brush and had a water level approximately 12 feet above the river level at the time the dredge was moved in.

The job of raising the dredge 12 feet and moving it ¾-mile to the borrow pit followed this sequence of operations:

First a pair of Caterpillar D8 tractors with dozers cut a wide swath through the woods between the river and the borrow pit. They also cleared an area at the river's edge for a basin.

Two Northwest draglines, a Model 6 with an Omaha 1½-yard drag bucket and a Model 95D with a Hendrix 2½-yard bucket, dug a channel 50 feet wide and 6 feet deep down the swath cut by the dozers. The draglines then dug a 100×300-foot basin in the cleared area, bringing it down below river level.

As the dredge moved into the basin from the river, it used its own pumps to throw a plug across the river side of the basin. While the plug was being built up, water was pumped into the basin by a Fairbanks-Morse electric-powered pump. The 20-inch centrifugal pump brought 15,000 gpm of water into the basin to raise the dredge the required 12 feet above river level. This operation filled the channel dug by the draglines, so that the dredge could be towed through the channel to the borrow pit.

Once at the edge of the borrow pit, the dredge began the excavation and gradually lowered itself to a level where the ground water and runback from the fill maintained the proper water level in the borrow pit. This eliminated the necessity of running the big pump to bring in water from the river. The Northwest draglines cleaned out and improved existing drainage ditches and built some new ones to handle runback from the discharge area.

Dredge is electric powered

The Calumet depends on an outside source of electrical energy for its power. On some locations this is supplied from a power barge carrying big diesel generators, but on this job power was taken from the high line of the Loup River Power Co. by a bank of transformers, and the primary 13,800 volts was stepped down to 4,160 volts for transmission through a power cable to the dredge. The 2,000 feet of cable, which with its rubber encasement is about four inches in diameter, was handled by a cable reel on the dredge. The cable itself remained in the water and barrel buoys marked its location.

Two big Elliott 3-phase synchronous motors drive the four-blade impeller of the main dredge pump. One of these motors develops 1,500 horsepower and is used to drive the pump at its low speed of 360 rpm. The other produces 2,000 horsepower to spin the pump at 450 rpm. Both of the motors operate at 4,160 volts.

At the bow, a heavy A-frame supports the 50-foot ladder which, with all of its fittings, weighs 44 tons. The 23-inch suction line is attached to the bottom of the ladder, and the 10-inch shaft which drives the cutter is on the top. The five-blade open-face cutter, which measures 6½ feet across, is driven by an Elliott 500-hp slip-ring motor through two Jones gear reducers which turn the cutter at 22 to 30 rpm.

A motor generator set transforms the 4,160-volts ac to 220 volts dc to operate the hoist and pump motors on the dredge. A 65-hp motor operates the five-drum hoist which handles the swing, ladder hoist, and spuds. Spuds for this operation are 16-inch H-beam sections 40 feet long. All controls are mechanically operated from the control room. A Caterpillar D318 diesel generator supplies emergency power for lights and pumps when the main power supply is disconnected.

The Calumet, built by the Calumet shipyards, has a 40×100×6-foot steel hull and a relatively small superstructure which houses only mechanical equipment. There are no living facilities on board for the crew. For maintenance uses, the dredge carries a Lincoln 240-amp welding generator permanently mounted on the roof.

Few difficulties encountered

The Calumet dug from a bank extending about 20 feet above the water level and some 30 feet below, so that it had a total face of roughly 50 feet in height. The sandy material caved readily and was easily handled by the pumps. The old river deposit material also contained many logs and stumps, and while most of these were either pushed aside or chewed up by the cutter, some pieces did get to the pump and halted work until they were removed.

Serving the dredge and the floating pipeline is the tug Louise, a 12×37-foot craft with a Superior 160-hp diesel power plant. The tug also handles



TRENCHING 7 MILES of Indianola Avenue, a heavily traveled thorofare in Columbus, Ohio, called for a fast-moving job. The first step in opening the ditch was to line-cut and break a 7" course of paving brick topped with asphalt. Two 80 lb. breakers, powered by a Jaeger "125" Roto Air-Plus, were used for this work.

How Jaeger "125" Rotary speeds street work

On the above job, the instant-acting control of the Jaeger rotary, enabling it to maintain 100 lbs. minimum pressure under all air demands up to 125 cfm, made it possible to run two 80 lb. breakers at full efficiency, cutting and breaking an average of 400 linear ft. of 3 ft. wide trench (1200 sq. ft.) each 8 hours.

Because the higher efficiency of the Jaeger Roto enables it to operate at more economical engine speeds, fuel consumption on this job averaged only 1½ gallons an hour.

For big work, equally high efficiency is offered in the Jaeger Model 600 rotary. Jaeger reciprocating type compressors also continue to be available in all Jaeger "new standard" ratings with the exception of the 600 cfm size. For full information and comparative prices, see your Jaeger distributor — or send for Catalogs JC and JCR5.

For big work, Jaeger offers the Roto "600", illustrated below. It is the first fully efficient 600 cfm rotary compressor.



Model 600 Roto Air-Plus

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an anchor barge, from which the structural steel anchors are placed by a Bucyrus-Erie hoist driven by a Waukesha engine.

The floating section of the pipeline consists of a series of 80-foot lengths of Armco 20-inch high-carbon steel pipe with Mobile Pulley & Machine Co. ball-and-socket joints welded to the pipe. Each 80-foot length is supported on four steel floats 4 feet in diameter and 20 feet long. A plank catwalk on the pipe provides access to and from the shore.

Booster pump used

About 3,500 feet along the pipeline from the dredge is a booster pump which pushes the sand and water through an additional 5,000 to 10,000 feet of pipe to the discharge point. The booster, built by Meckum Engineering Inc., Ottawa, Ill., consists of an Allis-Chalmers 1,500-hp electric motor driving a 20-inch pump.

Three crews kept the dredge running 24 hours a day, six days a week. Dredging began in August and was carried on throughout the winter, except for the month of February. Then, ice in the borrow pit froze the floating line. When the dredge attempted to move forward, the line either developed leaks or broke. La Crosse also tried to use a launch to break the ice, but the launch broke down under this hard usage.

During the nine-month operating period, production averaged close to 400,000 cubic yards per month.

On the discharge end of the long pipeline, a shop-made diffuser spread the fill material in a fan-like spray. This caused a rapid separation of sand from the water and resulted in a minimum of erosion of the fill. Near the discharge end, a Y with two hydraulic valves was installed in the 20-inch line. This made it possible to add pipe to the discharge line as the fill progressed without shutting down the dredge. An International TD-18 tractor and a remodeled Tournacrane handled the heavy pipe sections on shore while two Caterpillar D8 tractor-dozers built dikes in the discharge area and assisted in shaping and finishing the fill.

Runway paving

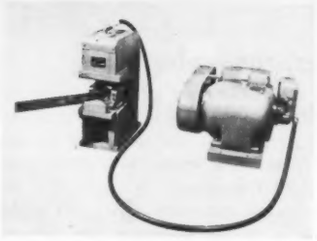
While the dredge fill was still progressing early in May, paving of the taxiway and runway were started. Approximately 190,000 square yards of concrete paving put down by the general contractor included 107,700 square yards of 14-inch slab and 80,000 square yards of 16-inch concrete slab. A total of 33,400 square yards of 4-inch bituminous pavement was also laid to complete paving work in September.

Slopes of the embankment are covered with a soil blanket placed by mechanical methods. Much of the material for this purpose was stripped from the borrow pit area ahead of dredging work. The stripping was done by two Caterpillar DW21 scrapers, a Tournapull, and one Cat D8 with a scraper. Caterpillar D6 and D8 tractors push-loaded the scrapers and assisted with the placing of the 350,000 cubic yards of material.

General superintendent for the Kiewit - Condon - Cunningham joint venture was Lytle Strong. He was assisted by Bud Lippold, job superintendent. For the La Crosse Dredging Corp., Charles A. Wheeler was superintendent and Harold Brunaugh was assistant superintendent on the grade. Chief engineer of the dredge Calumet was Robert Hilmer.

The Omaha district, U. S. Army Corps of Engineers, supervised the project. The district engineer is Col. Thomas J. Hayes III. Capt. John F. McElhenny was resident engineer, and James R. Scott, project engineer on the job. THE END

The American Automobile Association reports it costs $1.55 per day plus 3½ cents a mile to run a private car.



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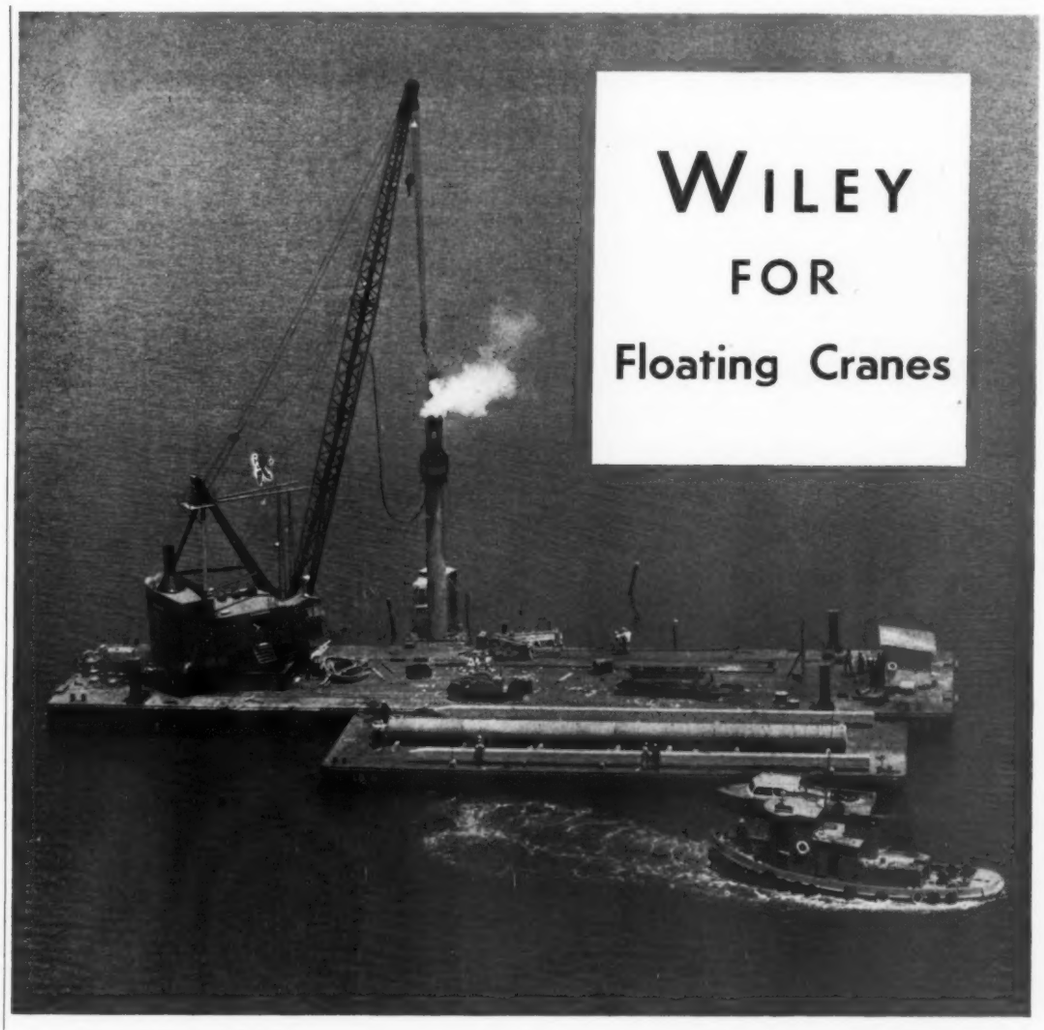
■ A new addition to the Manco Guillotine line of hydraulic tools is the Manco hydraulic utility press, which provides 35 tons of thrust in a compact, portable package. By interchanging of dies, the unit can be adapted to punching, shearing, etc.

Powered by a Manco 5-hp electric hydraulic pump, the unit operates on a 1⅛-inch stroke with a 1½-second operational cycle. Weight of the press is 300 pounds, and of the pump, 320 pounds. Height is 22 inches.

For further information write to the Manco Mfg. Co., Bradley, Ill., or use the Request Card at page 18. Circle No. 67.

Assistant vice president elected by Rust firm

The new assistant vice president of The Rust Engineering Co., Pittsburgh, Pa., is Frank L. Wilhelm. Most recently, Mr. Wilhelm was procurement manager for the company's construction project at Oak Ridge, Tenn. He will work from the Pittsburgh home office of the firm.



Starting Construction for the Lake Ponchartrain 24 mile Causeway connecting Jefferson and St. Tammany parishes in Louisiana, one of four model 124 Wiley Floating Cranes is illustrated driving the first 95'0" x 5'0" reinforced hollow concrete pile weighing 36 Tons.

For dependable Floating Equipment, discuss your requirements with Wiley Engineers.

WILEY MANUFACTURING COMPANY
BARIUM STEEL CORPORATION SUBSIDIARY

P.O. BOX 97, PORT DEPOSIT, MARYLAND PHONE: PORT DEPOSIT DRAKE 5-2111

For more facts, use Reader-Reply Card opposite page 18 and circle No. 213

First unit in new front-end-loader line features maneuverability and high lift



The 15-cubic-foot Napco loader, the first model of a new line, has a turning radius of 7 feet 4 inches.

■ The first of the new Napco loaders to be announced, the Model NL-50, is a front-end loader of 15-cubic-foot capacity. Front-wheel drive, rear-wheel steering and a 7-foot 4-inch turning radius to the outside of the bucket are features. This short turning radius and a low center of gravity, Napco claims, give the new material-handling unit exceptional maneuverability.

A high maximum lift of 7 feet 6 inches under the bucket hinge enables the loader to dump into hoppers and high truck boxes. Lift capacity is 1,250 pounds.

Another feature of this new loader is a 35-degree bucket tilt-back at ground level. This allows the bucket to get a full load quickly and easily as it is crowded forward and upward into the stockpile.

Shifting from forward to reverse is accomplished without clutching by a conveniently positioned lever. A heavy-duty planetary-type transmission, an integral part of the axle and transmission assembly, is directly coupled to the engine, eliminating the engine clutch.

A floating lift arm is another design advantage of the new loaders. It allows the bucket to follow floor contours and makes floor clean-up operations quick and easy.

Other features are: wet-type replaceable engine sleeves, direct-drive hydraulic pump, positive-action hydraulic brakes, two forward and two reverse speeds, and a full line of special-purpose attachments and accessories.

For further information write to Napco Construction Equipment, Division of Napco Industries, Inc., 834 North 7th St., Minneapolis, Minn., or use the Request Card at page 18. Circle No. 39.

Transmission gives 10 speeds forward and 2 reverse, TIMKEN® bearings give smooth flow of power

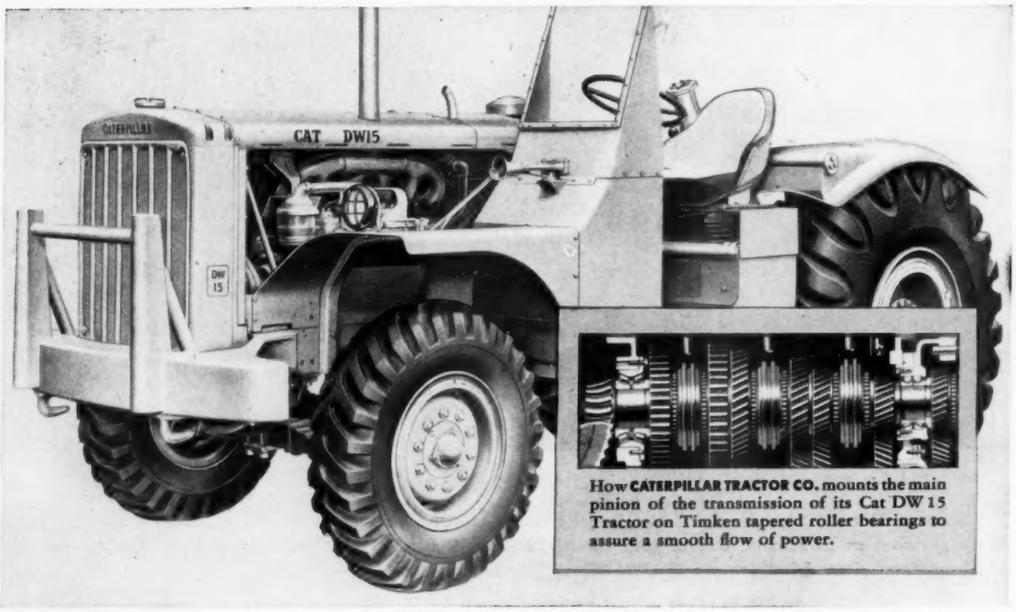
THIS versatile new Caterpillar DW15 Tractor delivers 150 horsepower with 10 forward speeds and 2 in reverse. To make sure its transmission gives a dependable and smooth flow of power, even under the toughest and most rugged of working conditions, Caterpillar mounts the main pinion on Timken® tapered roller bearings.

Because of their tapered construction, the Timken bearings take both radial and thrust loads in any combination. Full line contact gives extra load-carrying capacity. The pinion stays aligned. Gears mesh accurately and smoothly with minimum time-out for maintenance and repairs. And there's less loss of transmission power because Timken bearings practically eliminate friction. Here's why: Timken bearings are designed to give true rolling motion and they're manufactured to live up to their design.

Closures are more effective, because Timken bearings keep housings and shafts concentric. Dirt and moisture stay out while lubricant stays in. And Timken bearings normally last the life of the tractor. One big reason: they're made of Timken fine alloy steel, the finest ever developed for roller bearings. We have to make our own steel because that's the only way we can get steel good enough for Timken bearings. We are the only bearing manufacturer in the country that does it.

Your equipment should have *all* the advantages *only* Timken tapered roller bearings can give you. Specify Timken bearings—look for the trademark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



How CATERPILLAR TRACTOR CO. mounts the main pinion of the transmission of its Cat DW15 Tractor on Timken tapered roller bearings to assure a smooth flow of power.



WE MAKE OUR OWN STEEL

The special grade alloy steel which gives Timken bearings their strength and resistance to wear is made in our own steel mills.

Only Timken tapered roller bearings have these advantages: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. nickel-rich Timken alloy steels.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ↕ AND THRUST →○← LOADS OR ANY COMBINATION ✳

For more facts, use Reader-Reply Card opposite page 18 and circle No. 214

Air-operated bar cutter

■ A new air-operated shear for cutting cold ferrous and nonferrous bars up to 1¾-inch square or round has been developed by Curry Air Shear Corp., 941 Oliver Bldg., Pittsburgh 22, Pa. The compact Curry Type O-SC-20 shear weighs less and occupies less floor space than do conventional motor-operated shears.

The new unit operates from any standard shop air supply or compressor at pressures from 60 to 125 psi. With no motors or gears and practically no wearing parts, the machine requires a minimum of maintenance.



The new Curry Type O-SC-20 air-operated shear.

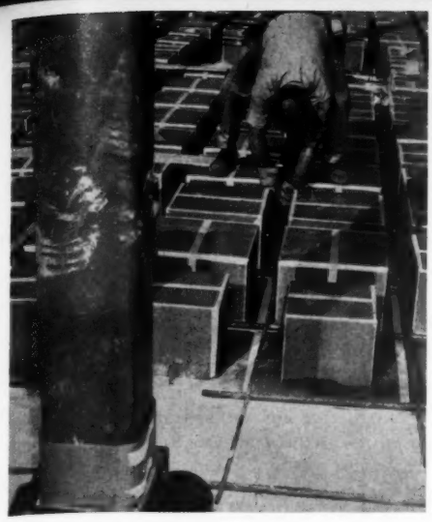
The machine will cut 1¾ inch-diameter cold mild steel at 80 psi air pressure. Normal speed is 2 seconds per cycle.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 30.

U. S. Chamber of Commerce names new committeeman

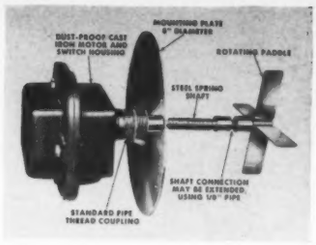
A partner and general manager of the W. L. Johnson Construction Co. & Associates, Columbus, Ohio, Fred I. Rowe, has been named to the 1955-56 policy committee of the Chamber of Commerce of the United States.

He is a member of the Columbus Chamber of Commerce, and the labor relations committee of the Ohio Contractors Association.



Masking tape is used to assemble Container corrugated paper box forms on this lift-slab project.

New bin-level indicator for special conditions



■ A new paddle-type bin-level indicator for special installations has been introduced by The Bin-Dicator Co., 13946–54 Kercheval Ave., Detroit 15, Mich. The unit is said to be particularly adaptable to installations in bins under pressure or vacuum; bins, chutes, or conveyors handling materials containing large lumps which tend to bridge over a diaphragm; and similar arrangements.

The Roto-Bin-Dicator is reported to solve these problems with a slowly rotating paddle, mounted on a flexible shaft which projects into the bin and is driven by a small motor mounted in a housing outside the bin. When material in the bin partially or entirely covers the paddle, the rotation of the paddle is stopped and the torque exerted by the motor actuates a Micro switch in the motor housing. When material drops below the paddle, rotation is resumed and the Micro switch returns to normal.

For further information write to the company, or use the Request Card at page 18. Circle No. 83.

Corrugated box forms cut concreting costs

■ Special corrugated paper box forms for greater economy in lift-slab construction and on other concrete pours are a recent development of the Container Corp. of America. The forms, already field-tested on several large projects, are used to create a waffle pattern and thus save both time and materials in slab pours.

The Container box forms are of specially made corrugated paper board, the surface of which is coated with wax for additional waterproofing. Corrugated supporting partitions much like those found inside a beverage shipping container are used to provide added strength.

Delivered flat, the forms are easily set up and partitioned. Masking tape is used to join the box and to join the 2½-inch flanges which form the joists. According to the manufacturer, the assembly is rigid enough to remain in position while reinforcing is being placed and concrete poured, and the forms themselves withstand heavy loads created by workmen and equipment. After slabs are lifted and the concrete set, the forms fall out or are easily removed.

Forms are made to order by the manufacturer. The size used most commonly is $30 \times 30 \times 12$ inches.

The forms are also being supplied for poured-in-place structures such as bridges and retaining walls.

For further information write to Container Corp. of America, 2001 E. 57th St., Los Angeles 58, Calif., or use the Request Card at page 18. Circle No. 110.

Protective pipe coating

■ An economical protective coating for pipe, pipe joints, fittings, and couplings is described in a brochure available from the Tapecoat Co., 1523 Lyons St., Evanston, Ill.

The literature deals with Tapecoat-X, a coal-tar coating in tape form which is made with an extra thickness of coat tar to provide double-wrap protection from single-wrap application.

To obtain this brochure write to the company, or use the Request Card at page 18. Circle No. 81.

FIGHTS WEAR!



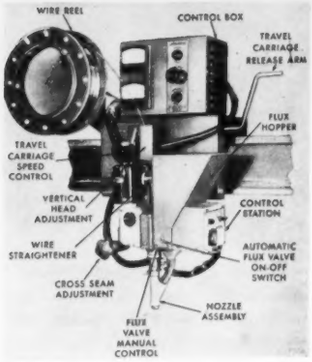
You *can* fight engine wear effectively. Switch to Sinclair TENOL®. This heavy duty oil is fortified with additives that provide additional protection for your engine . . . protection that an ordinary oil can't give.

The selected additives in Sinclair TENOL provide detergency, dispersion, anti-oxidation, anti-corrosion and anti-foam characteristics. These qualities protect your engine against wear. They provide high film strength and help insure freedom from ring and valve sticking, carbon and sludge formation, and the corrosive effects of combustion by-products on vital working surfaces.

Get the trouble-free, long-life operation that Sinclair TENOL can give. For the new pamphlet which describes Sinclair Tenol Motor Oils, write Sinclair Refining Company, Technical Service Division, 600 Fifth Avenue, New York 20, N. Y. *There's no obligation.*

SINCLAIR TENOL

For more facts, use Reader-Reply Card opposite page 18 and circle No. 215



The new Lincolnweld automatic welder.

Improvements in line of welding equipment

■ New flexibility giving a wider range of application has been provided for Lincolnweld automatic equipment with the creation of a completely new line of tools, machines, and accessories for hidden or submerged arc welding. The new equipment includes welding heads, controls, and power sources.

The new welding heads, LAF-3, LAF-4, and LAF-5, offer a choice of heads for either ac or dc current, field or shop welding, and constant-potential or variable-voltage power source. New operation controls permit a choice of instantaneous starting, either hot for intermittent welding or cold for precision starting; a choice of variable inching speeds, either slow or fast, away from or to the work; and a choice of carriage operation to give stand-still starts, flying starts, or manual control.

A new power source, the Lincolnweld AC-750, gives 750-amp continuous-duty ac power. It has a power-driven reactor control for setting current from remote switches on the welding head control box. Another new power source is the Lincolnweld DC-750, which is a motor generator machine specifically designed for automatic welding. It is rated at 750 amp, continuous-duty, at 40 volts. It can also be paralleled with a second DC-750 for work requiring higher amperages.

For further information write to the Lincoln Electric Co., 22801 St. Clair Ave., Cleveland 17, Ohio, or use the Request Card at page 18. Circle No. 100.

Portable rotary drills

■ A pair of portable rotary air drills capable of drilling from 4½ to 7⅝-inch holes are illustrated and described in a folder from the Mayhew Supply Co., Inc.

The Hurricane Model 1 drills to a 6¼-inch-diameter hole, and the Model 2 drills holes to 7⅝ inches in diameter. Truck mounted, both are operated by the truck engine through power-takeoff, and use Gardner-Denver 420-cfm compressors. Drill pipes up to 15 feet long can be handled.

To obtain this literature write to the Mayhew Supply Co., Inc., 4700 Scyene Road, Dallas, Texas, or use the Request Card at page 18. Circle No. 114.

New four-wheel cart for delivering mortar

■ The American Road Equipment Co. announces production of a new concrete cart that can be hoisted by the Econmobile high-lift hydraulic loader and easily moved about on a scaffold to serve individual mortar boards.

Even where high-lift units and palletized material are not used, the Mortar can take the place of self-propelled mortar carts. According to the manufacturer, it will do the same job more economically, considering its low cost and the elimination of maintenance and operating costs.

Designed to serve a six-bag mixer, the Mortar Hop has a 7-cubic-foot capacity, with a length of 42 inches, width of 25 inches, and height of 28 inches. The sides, ends, and bottoms are made of 3/16-inch plate formed and welded, with 4-inch channel reinforcing on the bottom. The four wheels have 8×2.50 semipneumatic tires, with the rear wheels swivel-mounted on shrouded bearings.



The Mortar Hop made by the American Road Equipment Co.

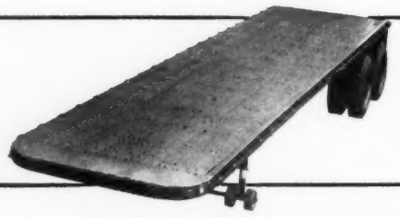
For further information write to the American Road Equipment Co., 4302 N. 28th St., Omaha, Nebr., or use the Request Card at page 18. Circle No. 101.



New Trailmobile Dump Trailer...

tandem axle, 25 ton capacity. Rugged "workhorse" on toughest jobs! Hi-tensile steel body has light weight ... tremendous strength. Tailgate opens top or bottom. 3-stage hoist mounted to push directly under load. Also built with single axle, 15 ton capacity! Power Fifth Wheel available when you require pump and tank on trailer.

Ease the squeeze on profits with cost-cutting



TRAILMOBILE PLATFORM TRAILERS with famous Trailmobile Tandem give years of low-cost hauling! Handle maximum loads of lumber, pipe, sheet metal, "I" beams. Main frame rails are full 15" deep for extra load-carrying strength! "Cantilever" outriggers supported by cross-members every 18" for still greater ruggedness! Also available as a two- or four-wheeler flat, without tandem!



TRAILMOBILE ASPHALT TANKS feature advanced design, rugged, hi-tensile steel construction, big capacity. Depend on them for extra years of troublefree service and a higher price at resale time.

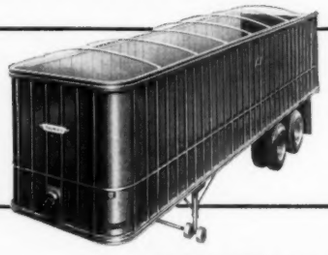


Illustrated —

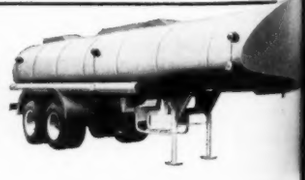
TRAILMOBILE LOW BED TRAILER MODEL FR

hauls really back-breaking loads with ease! Electrically-welded throughout for extra strength and long life! Models available with trunnion axle assemblies, enclosed rocker beams, level or drop platforms. Capacities from 15 to 35 tons!

TRAILMOBILE HEAVY-DUTY LOW BED TRAILER MODEL FC. When you've got to move shovels, road rollers, machinery and other equipment up to 75 tons, you need a Model FC Trailmobile trailer! Built *rugged* with best quality steel and other materials, electrically welded throughout, keeps upkeep costs low! Capacities from 45 to 75 tons!



NEW, LIGHTWEIGHT OPEN TOP IP (INTEGRAL POST) VAN combines all-steel construction, strength and light weight! New IP (Integral Post) construction features integral posts on 12" centers . . . only 7" apart! This lets you haul bulky, concentrated loads with ease! Open top construction allows for crane-loading!



TRAILMOBILE BULK COMMODITIES TRAILER

handles any and all materials that will flow . . . asphalt, core sand, aggregate and other bulk commodities. Fibre-glass insulation provides high insulating efficiency, saves weight.



The new Ingersoll-Rand safety handle is available on the I-R PB8A paving breaker.

Offer safety handle for paving breakers

■ A new safety development for paving breakers—a safety handle which the manufacturer claims is the first of its kind—has been announced by Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y. It is said to prevent operators from injuring their hands when working close to walls.

The new safety device weighs less than two pounds, and is available on the new Ingersoll-Rand PB8A paving breaker. It can also be purchased separately.

For further information write to the company, or use the Request Card at page 18. Circle No. 24.



The Reich Model 650 rotary blast drill, here crawler-mounted, drills blast holes up to 7⅞ inches in diameter. A choice of either an exhauster or Roto-Clone dust collector is offered with the unit.

Hydraulic rotary drill for use on road jobs

■ An upright-mast-type rotary blast-hole drill marketed by Reich Bros. Mfg. Co. is said to drill larger holes faster and to eliminate dust in the drilling operations. The hydraulically operated rig is available with mast lengths ranging from 25 to 40 feet.

Said to be especially adaptable for drilling shot holes on road-construction projects, the Reich Model 650 may be either truck or crawler-mounted. Top drive rotation reportedly eliminates dust, thus preventing costly work stoppage.

The Model 650 is available with continuous-stroke drills from 20 to 35 feet in length. The rig will drill holes up to 7⅞ inches in diameter.

Hydraulic leveling jacks, drill rods and adapters, and auxiliary engine drives are optional equipment.

For further information write to Reich Bros. Mfg. Co., 1439 Ash St., Terre Haute, Ind., or use the Request Card at page 18. Circle No. 60.

Film on highways

A new 20-minute color film, "Road Block", has been produced by Caterpillar Tractor Co. to make the public aware of one of the nation's critical road needs.

The picture presents the viewpoints of a housewife, traveling salesman, and farmer who want better roads, and attempts to answer whose interest should be placed first in constructing roads for farm-to-market, through, and local travel.

Copies of the film may be obtained for showing by writing the Caterpillar Tractor Co., Peoria 8, Ill.

C.I.T. vice president for Canadian subsidiary

Clarence E. Trudeau has been made vice president of Canadian Acceptance Corp., Ltd., Toronto, Canada, a subsidiary of C.I.T. Financial Corp., New York, N. Y. Before his promotion, he was an assistant vice president of C.I.T. Corp., also a subsidiary firm, and head of its Philadelphia Division. Replacing Mr. Trudeau as assistant vice president is Daniel V. McCarthy, a former field representative in Pittsburgh.



Trailmobile SC Bulk Cement Trailers eliminate bags, barrels, storage and rehandling . . . saved one user $177 on each load (37½¢ per bag)! Speeds handling . . . unloads 118 barrels of dry cement in 15 minutes! The Trailmobile's lighter weight means lower operating costs, additional payloads.

TRAILMOBILES

. . . Engineered to Outwork and Outlast them all . . . a finance plan to suit your needs!

It's great to be low bidder—if there's still room for a profit! So when you figure jobs, figure all the ways a Trailmobile trailer can help you cut costs . . . save man-hours . . . bring the job in on time!

Trailmobile Trailers cut down-time to the bone. They're built with brawn and muscle to take all the abuse you can give them! And they're always in demand in the used equipment market, too—contractors everywhere know them to be reliable and efficient no matter how rough the job turns out to be.

Whatever your hauling requirements, there's a rugged Trailmobile *right and ready* for you! See the yellow pages of your local phone directory for the location of your nearest Trailmobile branch office and able assistance in solving your hauling problems! Or, write us direct . . . use coupon below.

TRAILMOBILE USED TRAILERS
For Every Purpose!

Many contractors use Trailmobile Van Type Trailers as mobile or permanent field offices, drafting rooms, payroll and watchmen's shacks. Also for tool and equipment storage, transportation of heavy equipment from site-to-site, sleeping quarters, and many other uses! Low in cost, these used Trailmobile Trailers quickly pay for themselves in the time and money they save on shanty construction and erection at each new site!

Other top-value Trailmobile used trailers include:

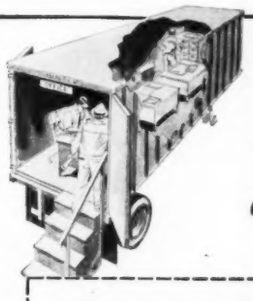
TANKS... *for water, gasoline, oil, asphalt, bulk cement storage and transporting.*

FLATS... *to hold and haul air compressors, pipes, lumber, poles, bulky machinery, digging equipment.*

DUMPS... *for hauling up to 25 tons per load.*

All sizes . . . lengths . . . and types available!

TRAILMOBILE INC.



Friendly Trailmobile Branch Offices Throughout The U. S. To Assist You With Your Hauling Problems! Mail Coupon For Further Information!

TRAILMOBILE INC., Cincinnati 9, Ohio

Please rush literature on following type trailers:

_____BULK COMMODITIES _____VANS _____DUMPS

_____OPEN TOPS _____PLATFORMS _____LOW BEDS

_____ASPHALT TANKS

☐ Send us more information on _____ type used trailers.

☐ Please have your representative call without obligation.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

The Trend is to **TRAILMOBILE**

Cincinnati 9, Ohio Berkeley 10, California

For more facts, use Reader-Reply Card opposite page 18 and circle No. 216

PORTRAIT IN PRINT

From riches to rags and back

Teamwork by E. P. Mellon and Donald C. Peters brings Pittsburgh's Mellon-Stuart Co. back to life



Board chairman Ned Mellon, left, and president Don Peters check up on a job. One the extrovert and the other the serious engineer, Mellon and Peters complement each other and form a good construction team.

If you're looking for a magic formula for piling up a backlog of contracts in today's competitive market, don't ask E. P. (Ned) Mellon II, chairman of the board of Mellon-Stuart Co., Pittsburgh, Pa., or Donald C. Peters, president of the firm. They have no formula.

But in spite of this lack, Mellon-Stuart has overcome a three-year "lean period", bouncing back from financial troubles to secure a large enough contract backlog to pay company bills for the next two years—even if a single new job isn't secured. Forget the search for a magic formula, and either of the officials will give you what they believe are the reasons for the firm's success. They'll also hastily explain that what has worked for Mellon-Stuart might not work for another company.

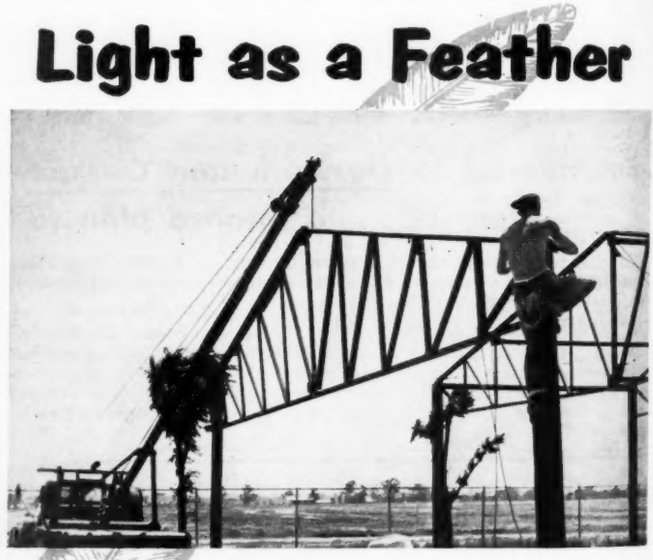
And if you're still interested in magic, perhaps it lies in the personalities of the two men who have had much to do with the success of Mellon-Stuart today. Mellon is the extrovert; Peters is the serious-minded engineer. Together, they form a tough team to beat. And they've made things even tougher for their competition by creating a youthful well informed organization from the board of directors down.

Mellon can't quit

Mellon is the sort of man who never learned when to quit and, by his own admission, he's a poor loser. Both these traits, which have had a lot to



For more facts, use Reader-Reply Card opposite page 18 and circle No. 217



For more facts, use Reader-Reply Card opposite page 18 and circle No. 218

Peters, left, discusses some of the problems on the job with Mellon. Talking Peters into joining the firm as president in 1951 was, Mellon admits, his "master stroke".



do with the success of the company, showed up as soon as Mellon started working for the firm in 1930. Then, in spite of the fact that he was the great-grandson of the late Judge Thomas Mellon, founder of the Mellon banking business in Pittsburgh, and the son of the late T. A. Mellon, one of the company's founders, Ned started working at the bottom as a laborer on the Mellon Institute job.

As the boss' son, Mellon had to work harder than anyone else, so that no one could single him out as being a favored worker. But this happened anyway, goading Ned into betting a labor foreman $50 that he could run an air hammer at the bottom of a caisson hole five floors underground for a 60-day stretch. Though he stuck to it and won, there were plenty of days when Ned regretted the bet as he fought the hammer through tough sandstone.

Mellon has had to buck more than the prejudice aroused by his immediate forebears. His namesake, an uncle, was an architect who served two terms as president of the American Institute of Architects. One of his father's uncles was R. B. Mellon,

(*Continued on next page*)



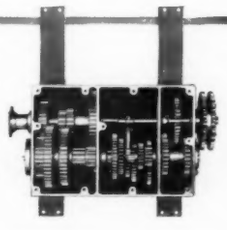
"This Cleveland 140 is a diggin' fool"

SO SAYS OWNER, Frank C. Heckman, Excavating and Trenching Contractor of Santa Fe, New Mexico. His Cleveland is here shown digging trench for the installation of sewer, water and gas lines in a new building project in Santa Fe. Each house requires a total of about 300 feet of trench, all 20 inches wide but varying in depth down to 4 feet.

Heckman does all the trenching for this construction company which erects about 200 buildings yearly in Santa Fe. In addition he does many scattered trenching jobs throughout the Santa Fe area, much of it for utility companies.

He's sold on his Cleveland's speed and maneuverability for digging short runs of trench profitably and on its rugged dependability for turning out high daily production on pipeline and similar big jobs.

This famous Cleveland multi-speed transmission *has no equal.* It provides 12 individual crawler speeds for each of 4 digging wheel speeds—gives you the *right* speed and power *combination* for *every* trenching job *condition.*



Your local distributor will show you how Clevelands do more—for less

THE CLEVELAND TRENCHER COMPANY • 20100 St. Clair Ave., Cleveland 17, Ohio

CLEVELAND

For more facts, use Reader-Reply Card opposite page 18 and circle No. 219

Putting the Thruway Thru



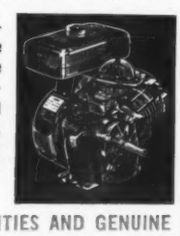
CONTINENTAL MOTORS — Powerful as the Nation — AMERICA'S STANDARD ®

. . . with a Big Assist from Red Seal Power

Specialized machines such as this Model "GB" Blaw-Knox Precision Subgrader account for the amazing rapidity with which the highway network is expanding to meet this country's needs. This unit, with its extra discharge horn permitting discharge of spoil at either end, is only one of a steadily-lengthening list of special-purpose equipment utilizing Red Seal power. You find Red Seals, today, building prestige for the makers—and earning *profits* for the users—of leading makes of pavers, graders, mixers, compressors, earth-movers, ditchers, shovels, rollers and numerous other machines. You can clinch on-time performance by standardizing on equipment which offers the plus-value of dependable Red Seal power.

4-CYCLE ENGINES FOR INDUSTRY AND FARM

In addition to its large engines, Continental builds an outstanding line of heavy-duty air-cooled four-cycle models for farm and industrial applications requiring 2 to 3 h.p. Advanced engineering gives them easy starting, high dependability, and unusual lugging capacity at low speeds . . . Options: patented and exclusive Contex® external ignition system, low-level ignition cut-off, 6-1 reduction gear, and other features. Available also for use on kerosene . . . For information on these models, address Air-Cooled Industrial Engine Division, 12800 Kercheval Ave., Detroit 15, Michigan.



SERVICE FACILITIES AND GENUINE RED SEAL PARTS ARE AVAILABLE EVERYWHERE

Continental Motors Corporation

MUSKEGON • MICHIGAN

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6218 CEDAR SPRINGS ROAD, DALLAS 9, TEXAS • 910 S. BOSTON ST., ROOM 1008, TULSA, OKLA.
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who assembled such industrial giants as the Aluminum Co. of America. Another was Andrew W. Mellon, one-time secretary of the treasury and ambassador to Great Britain under President Hoover at just about the time Ned was getting his start in the construction business.

At this time—1930—Mellon-Stuart was just thirteen years old. Actually, the history of the firm reaches back further than that. Ned's father originally was associated with Robert Grace Contracting Co., founded in 1910 to specialize in railroad, tunnel, and bridge construction. Grace later sold his interest to the Mellons and Ned's father became president. Then in 1917, the firm merged with James L. Stuart Co., becoming Mellon-Stuart. Two years later, when Stuart became ill, he sold out to T. A. Mellon, who became president and sole owner in 1921.

Ned, starting work the year after the market crash, was advanced from laborer to checker to head timekeeper, and finally to assistant labor foreman on the Institute job. Then, after several years at a desk job, he was elected vice president of the firm and assumed responsibilities which grew increasingly heavy during the 1940's when his father began to hand over the reins of management.

Meanwhile, the company was doing well, having completed such jobs as the $7.5 million Gulf Building, the $4.2 million Koppers Building; and the $1 million Federal Reserve Bank Building, all in Pittsburgh.

This bright future was not to last too long. In 1950 the company ran into some bad breaks, almost going under after a series of losing jobs. The $1 million in losses which Mellon-Stuart was forced to absorb weakened the financial stability the firm had acquired in the past. Today, though Mellon attributes the losses to poor judgment on the part of people in whom he placed confidence, he himself takes the responsibility for what he calls the past poor supervision and estimating procedures.

The climb back

Aware that the company's greatest need was for young men with new ideas and imagination, Mellon went to work quickly to revitalize the firm, bring in new blood, and start Mellon-Stuart on its way to its present position in the industry. It was a big job, but Mellon concentrated during the post-war period on rounding up people capable of doing the work he wanted done. One of the bigger changes he made was in the executive family; new and younger faces appeared at board of directors' meetings. At one time, excluding Mellon and one other member, all directors of the firm were under 40 years of age.

His master stroke, Mellon cheerfully admits, was to talk Don Peters into joining the company in 1951. Together they developed into a team hard to resist. Ned is the front man who makes the contracts and the pitch for Mellon-Stuart. Don clinches the deals with a combination of engineering know-how and a genius for cost analysis applied with a knowledge of construction. With this combination, the firm landed some juicy contracts, including the $3.8 million St. Elizabeth Hospital addition in Youngstown, Ohio; a $2 million job on the Western Electric Co. warehouse in Pittsburgh; the $1.5 million Thorofare Markets warehouse and office building near Pittsburgh; and the $1.2 million Remington-Rand office building in Pittsburgh.

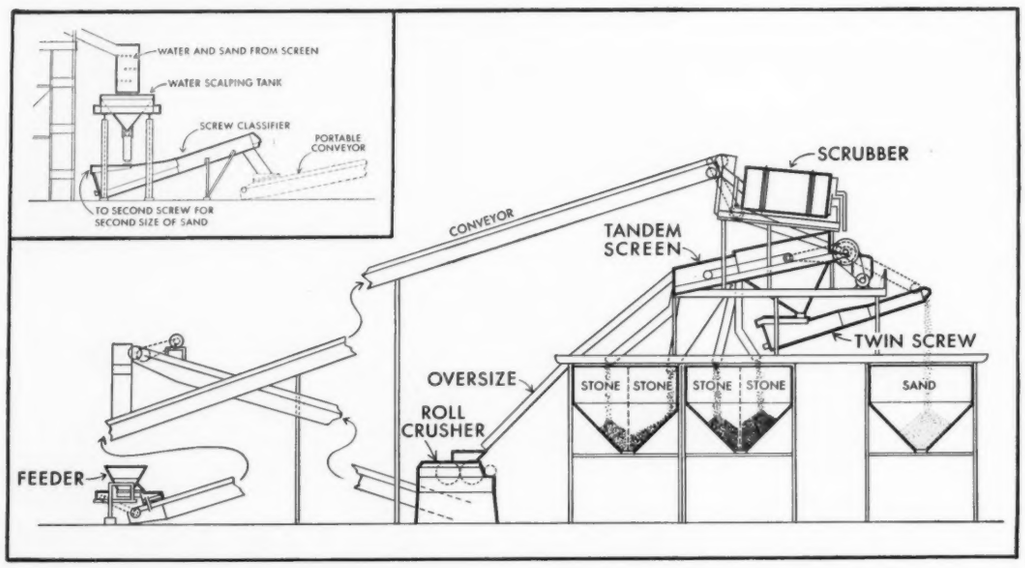
Peters, taller and slimmer than Mellon, started his construction career as a timekeeper in 1938—a time when Mellon was just preparing to take over Mellon-Stuart—and was just 35 when he was elected president of the firm and Mellon became chairman of the board. Between the time he was graduated with a B. S. in civil engineering and the time he started with Mellon-Stuart, Peters was first with Siesel Construction Co., then with Crump, Inc., both Pittsburgh firms. At Siesel, Peters went on from timekeeper to become field engineer, estimator, and, at the age of 27, construction superintendent.

In 1944 he went to Crump, Inc., as an estimator, climbed to the job of chief engineer, then became vice president and director. From here, Peters moved directly to Mellon-Stuart as president.

A bespectacled man with a soft voice, Peters is a member of the Young President's organization, an exclusive body limited to those who become head of a million-dollar organization before the age of 40. He is also one of the 100 young Pittsburghers chosen by the city Chamber of Commerce as one of the "Leaders of Tomorrow." And as president of the Pennsylvania Society of Professional Engineers, he is the youngest head the group has ever had by a good ten years.

Peters and Mellon, complementing each other, occasionally get into a friendly argument over which is most important to the company. Mellon, not a formally trained engineer, enjoys the wrangling. He sometimes suspects that "Don wonders what guys like me do in this world." But he adds, grinning, "Once in a while he has to admit that maybe we have our place."

Mellon's work with the company now leaves him little time for sports and hobbies. But there was a time for nearly two decades when baseball



Why this "packaged" washing plant fits big-job operations

Produces up to seven sizes at 150 tph clip

Here's a big package-type washing plant that will supply huge quantities of thoroughly cleaned and sized sand and gravel to fill every demand made by your job, *no matter how big!* It's PIONEER's new 405-W Washing Plant.

150 tons per hour is a lot of production in any language. **Yet the new 405-W not only gives you this tremendous output but also enables you to produce 2 different sizes of sand and 5 sizes of stone *simultaneously*, including oversize, which you can crush and run back through the screens. If you need fewer sizes, production can be even greater! For example, users report 200 to 215 tons per hour when separating and washing three sizes of gravel and one of sand!**

Secrets of high production

Big-plant proportions are one reason for such high production, but it takes *three* secrets, other than size, to process such huge quantities.

The first secret is the way in which the vibrating screen functions. This 4'x 20' tandem screen simultaneously separates up to 5 sizes of material, plus oversize, chuting four sizes of aggregates to storage bins, one size of sand to the dehydrator, and oversize to the crusher for reduction. A second size of sand can be produced when desired.

Utilization, rather than *rejection* of oversize is the second production secret. All oversize scalped off by the screen is chuted to a PIONEER roll or jaw crusher for reduction and fed back to the plant for re-processing.

Maintaining an *even, continuous* flow of material through the plant is the third production secret. PIONEER'S Model 30G Mechanical Feeder maintains the steady, even flow necessary for maximum production.

How second size of sand is obtained

Plaster or mason's sand can be produced by the addition of a second dehydrator to receive the overflow of water which carries such material from the first dehydrator. Recovery of this very fine sand results in additional profit to you and completely eliminates any waste. A water scalping tank can be added to the plant for maximum recovery of sand down to 200 mesh or finer. (See inset.)

Other important features

Maintenance costs are low, as all drives are simple. Individual electric motor drives on each unit mean fewer sprockets, shafts, gears, belts and chains to wear out.

Labor costs are low, as 2 operators can control entire plant. One regulates feeding, while the other checks material hauled away.

Additions and alterations are simple to make. Jaw or roll crushers can be added or omitted. Dehydrators and bins may be changed and other units such as a water scalping tank added to meet specific needs. Stockpiling conveyors can be added to handle any or all of the sizes produced.

Varying material specifications are easily met by simply changing screens.

Compact design. *This is a "package" plant, specifically designed to give you maximum plant at minimum cost.* Plant needs space of only 15' x 180'. This lets you set up plant close to pit or water supply.

Semi-portable. All units can be quickly dismantled, moved, and assembled with a crane and transported by truck or semi.

For further information, write Pioneer Engineering Works, Inc., Minneapolis 13, Minn. (subsidiary of Poor & Company, Chicago) or nearest PIONEER Distributor.

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☐ ROCK PLANTS ☐ BITUMINOUS PLANTS ☐ VIBRATING SCREENS
☐ JAW CRUSHERS ☐ APRON FEEDERS ☐ BUZZER SCREENS (LIGHT DUTY)
☐ ROLL CRUSHERS ☐ ORO FEEDERS ☐ CONTINUFLO CONVEYORS

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occupied most of his leisure time. During those years, he played on and coached many champion amateur and semipro clubs, and some of his players went on to the big leagues—catcher Mike Garbark for the New York Yankees, pitcher Joe Vitelli, outfielder Bobby DelGrecco, and the Pirate first baseman Tony Bartirome.

Ned was a catcher for the Mellon-Stuart team in an era when company nines flourished throughout western Pennsylvania; but he got more fun out of coaching and finally gave up active participation entirely.

One team, Mellon recalls, was made up of boys from the tough Hill District of Pittsburgh. The players wanted to call themselves the "Washington Street Mellons," and to the dismay of many dignified friends of the family, the name appeared over the team's picture in the newspaper. But, says Mellon, the "Washington Street Mellons" earned a good reputation for their conduct.

Another of Mellon's enthusiasms is pretty far from baseball. An amateur entomologist, Mellon has collected some 8,000 insects from all over the world. His prize is a tiny moth he picked off a light bulb while vacationing in Florida. He didn't know it was a moth at the time, but the mosquito-like insect, he learned later, is extremely rare and worth several hundred dollars.

A system for success

Today at 47, Mellon lives in the Edgewood section of Pittsburgh, in a sprawling frame house made completely informal by seven active children. His firm is in an enviable position, four years after a financial crisis which might have put other firms out of business for good.

Behind Mellon-Stuart today are some hefty contracts: a $2.8 million Butler Memorial Hospital in Butler, Pa.; the $800,000 DuMont television studios in Pittsburgh; the $500,000 remodeling and addition job on the First National Bank of McKeesport, Pa., and the $1 million Pleasant View Housing Project. Contracts now under way bring the value of jobs handled by the firm to date to almost $400 million. And in each of the last two years, net profits have run into six figures.

Though neither Mellon nor Peters has any sure-fire formula for the success of the firm, the profits of Mellon-Stuart testify that there is nothing haphazard about its officials' approach to construction and management. For Mellon, there are three most important factors playing a role in the firm's success. The first is a young office organization trained in costs, field know-how, and management. The second is a field supervising force trained in cost consciousness and cooperation with the owner, architect, and subcontractor. The final factor is an operating policy that helps Mellon-Stuart maintain peak efficiency while cutting costs and holding risks to an irreducible minimum.

To make this latter policy work, Mellon-Stuart has adopted what is perhaps the most detailed system of cost estimating in the industry. Units are broken down to the point where error is all but eliminated. An estimate of costs is obtained through a detailed system of cost keeping by an organization trained in the job. Since costs on every job are broken down to the lowest possible units, a typical estimate may contain as many as 1,000 items. This makes for a mountain of detail, but it results in clean close estimating. And it is a good selling point on time and material jobs, according to Peters.

Peters lists a breakdown of a single general item in a typical estimate—a concrete floor on ground—this way: cost of subgrading, underfloor drainage fill, concrete pouring, curing admixture or hardener, topping if any, expansion and contraction joints, special box-outs or forms, mesh reinforcement, and any other miscellaneous items. All this work is estimated on a square-foot rather than a large-volume basis.

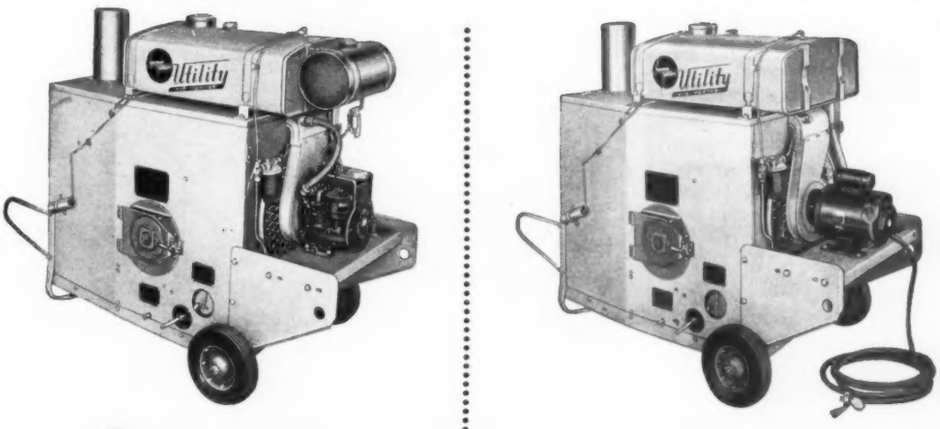
Peters feels this practice provides a wide range of cost components, and reduces the chance of error while forming an excellent construction guide. Field supervision is given the complete estimate. Nothing is hidden. This establishes confidence on the part of the field forces and makes them feel a part of the team.

"It sounds like a simple analysis", say Peters, "and it is, but it's the secret of close estimating. A lot of contractors just won't do it. A lot of them say they do, but they really don't, particularly on heavy construction."

Incentive system

To encourage efficiency on a job, Mellon-Stuart has inaugurated an incentive system whereby the savings between the estimated and actual cost of a piece of work are shared with the supervisory force. Though only those who demonstrate their ability to participate are included in the incentive program, everyone on the supervisory force has a chance to earn the right to take part, and both field and office supervisory personnel are involved. Basically, the flexible program rewards supervisors for turning out a better job than the company could reasonably expect. Bonuses based on savings are distributed quarterly. As a result, beating the estimate on a company job has become an exciting game to everyone

Now-Two Heaters for the price of One!



. . . from gasoline engine . . . to electric motor in 20 minutes

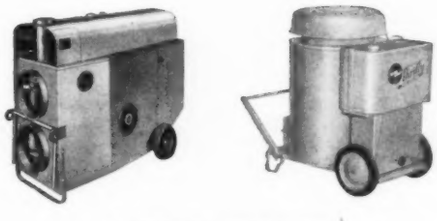
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HERMAN NELSON "UTILITY" Portable Air Heater

The *first* portable heater that offers interchangeable power plants . . . motor drive where you have electric current, or gasoline engine for remote job sites. Gives the *most* heat for the *least* fuel of any heater.

The "Utility" will operate overnight without re-fueling. Also operates with either gasoline or fuel oils, without need of adjustments. It may be used with or without ducts, and with or without venting, depending on job or location. Engineered for utmost safety, with automatic overheat cut-off, and safety trip valve that shuts off fuel when the prime mover stops.

The simplest of all portable heaters to operate and care for, the "Utility" has a manual heat control, and self-cleaning burner. 75,000 to 425,000 BTU capacity. Write for free literature on the *complete new* Herman Nelson line!



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"De Luxe" Model
Oil Fired. Electric motor powered. 280– 450,000 BTU capacity. Completely automatic operation.

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on the job. If the cubic-foot pouring cost of concrete is bettered by a fraction of a cent, there's plenty of celebrating among Mellon-Stuart forces. But an overrun by the same fraction of a cent can make a work site take on the aspect of a wake.

The company also has an insurance plan, toward which it pays amounts equal to 12 per cent of employees' salaries per year. This percentage can rise to 30 per cent, depending on profit margins.

Mellon-Stuart's supervisors are thoroughly trained in all phases of construction. Its top engineers, who can talk authoritatively to a customer or to one another on any subject from laying brick to estimating, are like general practitioners who become specialists in more than one phase of their profession.

It's much the same with Mellon and Peters. Both know their business. And both respect each other as specialists.

THE END

Standby lighting unit uses long-life battery

■ A standby illumination unit that uses long-life nondeteriorating nickel cadmium batteries is offered by the Nickel Cadmium Battery Corp., Easthampton, Mass. Designed to provide an auxiliary 6-volt light source which will come on instantly and automatically when normal ac power fails, the unit is recommended for use at blasting sites and on many other construction operations where uninterrupted illumination is required.



The Nicad standby lighting unit.

The Nicad automatic lighting unit is enclosed in a 9×15×14-inch welded-steel cabinet with two 6-volt 50-candlepower non-glare diffused lights mounted on the top. Front-panel mounting includes a high-rate charge timer that can be set from 0 to 12 hours, an amber neon readiness light, a red neon high-rate light, a light switch, and a push-button test switch.

The heart of the unit is the Nicad nickel cadmium battery, an alkaline storage unit which the manufacturer claims will not crack, freeze, corrode, or deteriorate when left idle. There is said to be no escape of active materials, and noxious or corrosive fumes reportedly are eliminated.

The unit connects to a 120-volt 60-cycle ac outlet with cord and plugs supplied as standard.

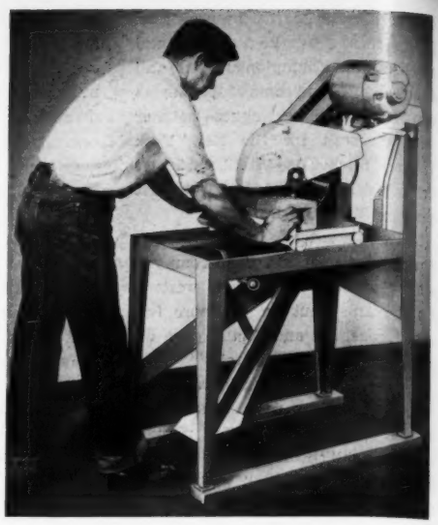
For further information write to the company, or use the Request Card at page 18. Circle No. 46.

Improved masonry saw

■ Three major improvements incorporated in the latest model Di-Met masonry saw are said to insure longer life for the unit, greater freedom from maintenance, and faster more efficient sawing, according to the Felker Mfg. Co., 1128 Border Ave., Torrance, Calif.

These improvements include blade-saver collars which distribute more water over each blade side, thus providing faster cuts with less blade wear; a ball-bearing spindle quill which can be removed and replaced in seconds; and simplified height adjustment by means of a foot pedal.

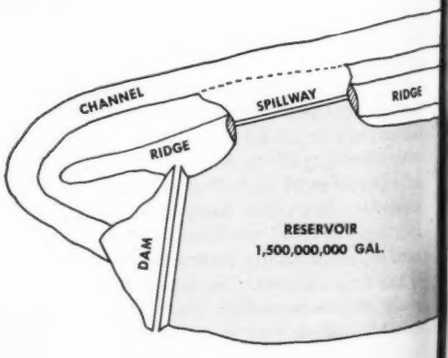
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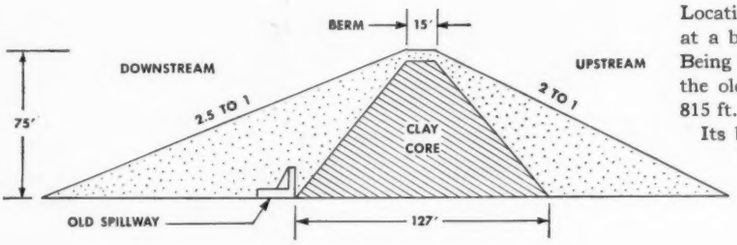


The newest Felker Di-Met masonry saw incorporates major improvements.



A year ago the work area you see above was the site of a near-disaster. Due to prolonged drought, the 50-million gallon reservoir which supplied Sylacauga, Ala. became completely emptied. For 3½ months, 15,000 people were forced to rely on tank trucks and a nearby spring for their water. Textile, foundry, and quarry industries had to cut production. Fire danger was extremely high. By next year, though, this danger will be just an unhappy memory. A new dam will impound over 1½ *billion* gallons of water in a 170-acre, 50-ft. deep reservoir. This will assure the city and its industries of enough water for 8 months, regardless of rainfall.





Location of the dam is between two hi
at a bend in a winding stream chan
Being built over the concrete spillway
the old dam, the new structure wil
815 ft. long and 75 ft. high.

Its base will be 353 ft. wide; its
berm, 15 ft. Some 215,000 yds.
compacted clay will form
core; 13,000 tons of nat
marble, the rip-rap fo



Hargus grading markers indicate the depth of cut for operators of scrapers and other earthmoving machinery.

New grading markers have high visibility

■ A new type of grading marker said to take the guesswork out of land-leveling is announced by Hargus Markers, 501 W. H St., Brawley, Calif.

The Hargus grading marker is a heavy water-resistant paper sleeve which is placed over a stake in the area to be graded. The sleeve is clearly marked so that an excavating operator can read it from as far as 600 feet away.

Varying border widths with the amount of cut and fill plainly marked are said to eliminate errors of judgment in grading operations. A border of black at the bottom of the fill marker designates the fill desired, and the top of the border indicates the desired finished grade. The amount of fill is printed in increments of tenths of feet. Cut markers use similar borders and printing to eliminate errors in grading.

Markers may be combined for cuts or fills larger than one foot.

Made of waterproof paper and glue, the markers are said to be fadeproof. They may be stapled in place for use under windy conditions. Field tests indicate the markers will last from two to three months and still maintain maximum visibility, according to the manufacturer.

For further information write to the company, or use the Request Card at page 18. Circle No. 56.

Payscraper speed helps complete 1,500,000,000 gallon reservoir 60 days ahead of schedule

If you'd like to know more about the abilities of International's new Model 75 Payscraper, just ask Ed Bentley, veteran Sylacauga, Alabama contractor.

Mr. Bentley has been using two of these 18½-yard self-propelled scrapers for a season now. He reports they "handle better than any other scrapers I have ever had."

"LOAD FAST, WORK FAST"

"My two Payscrapers," he says, "definitely exceed our expectations in every respect. They load fast, haul fast, and spread fast. My operators like their ease of operation and comfort. I like their day-after-day trouble-free performance."

Pictured is one of Bentley's latest Payscraper jobs—helping move 250,000 cubic yards for a reservoir dam for the city of Sylacauga. Used with a fleet of three International TD-18's, a TD-24, and a Galion grader, the two Payscrapers here combined to average 2,000 to 3,000 pay yards per day. Cycles, averaging 5,000 feet, took about five minutes. This high speed, day after day, week after week, helped Bentley complete work in four months—well under the 180 days allowed in his contract.

CALL FOR A DEMONSTRATION

Let us show you this 18½-yard "75"—or the smaller 13-yard "55" Payscraper—in action on your job. Call your International Industrial Power Distributor to arrange time and place.

• IMPORTANT CHANGES HAVE BEEN MADE

In the past year, International's research and manufacturing staffs have greatly improved the "75" Payscraper. They have raised power to 262 hp (17½ "horses" per yard of struck capacity). They have increased heaped capacity to 18½ cubic yards *without sideboards*. They have strengthened transmission, differential, and final drive, boosted rim-pull, and made over 80 more changes to boost output and lower downtime. If *you* want top efficiency in a rubber-tired scraper, you'll want to check the new Payscrapers. Do it now.

INTERNATIONAL HARVESTER

INDUSTRIAL POWER • MAKES EVERY LOAD A PAYLOAD



Contractor Bentley reports his 161 dhp TD-24 consistently loads 18½-yard Payscrapers in 35 to 40 seconds. "The '24' and my other IH crawlers are my top producers," says Bentley.



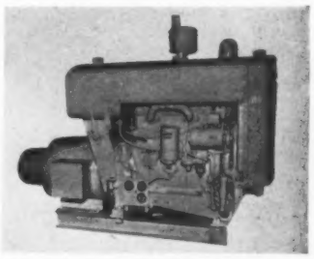
Payscraper's open-top speeds loading from TD-9 tractor-shovel. Material is muck—part of 35,000 yards stripped from old dam site by contractor's four TD-18's and 24's.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 223

New diesel-electric sets in 8 to 35-kw capacities

■ A complete new line of diesel-electric generator sets in the 8 to 35-kw capacity range has been announced by Universal Motor Co. The plants are reported to be an average 23 per cent lower in weight than Universal's former diesel generators.

The new series includes 40 models in three speed ranges: 1,200, 1,500 and 1,800 rpm. All have automatic voltage regulators and line voltmeters, as well as voltmeter selector switch and rheostat. The heavy-duty alternator is of the revolving-field type with exciter integrally mounted. All sets are designed for continuous duty or for emergency-standby service, with line transfer control for automatic starting in the event of power failure. Remote control is also offered.



The Universal H-1357A 8-kw diesel plant is one of 40 new models comprising a new series just announced.

Power is provided by 4-cycle full diesel engines featuring electric starting on diesel fuel. A 12-volt starting-system battery-charging generator is standard. Compactness is achieved by close coupling of the engine and generator and by careful mounting of other components.

Universal 60-cycle generators in the 1,200-rpm speeds start at 8 kw and include 12.5, 20, and 25-kw capacities. For services where 1,800-rpm speed is desired, Universal offers sets in 10, 15, 25, and 35 kw. Sets of 50-cycle frequency, starting at 8 kw and extending through 15, 20, and 25 kw, are also manufactured. These are 1,500-rpm models. All models are mounted on a rigid all-welded steel base with radiator and fuel tank forming a sturdy housing.

For further information write to Universal Motor Co., 536 Universal Drive, Oshkosh, Wis., or use the Request Card at page 18. Circle No. 130.

Start is made on St. Lawrence po

Three main jobs form U. S. share of power job

by RALPH MONSON, field editor

With over $150 million in contracts already awarded to more than forty contractors and suppliers, work began this past summer on the U. S. portion of the St. Lawrence Power Development. At the same time, operations started on the Canadian side. U. S. construction, being done under the Power Authority of the State of New York, is being financed by bonds issued by the authority. These will be repaid from future revenue from the sale of power.

Three main structures and several minor projects make up the American power development. Of the three, the Barnhart Island power plant, near Massena, N. Y., is the only one being built under the joint jurisdiction of the U. S. and Canada. Power from this source will be shared equally by both countries. Long Sault Dam, also near Massena, and Iroquois Control Dam, about 25 miles upstream, are the two other main American projects.

The general contractor for the $26 million Long Sault Dam is Walsh, Perini, Morrison - Knudsen, Kiewit, Utah Companies. This is a joint-venture firm of Walsh Construction Co., Inc., New York, N. Y.; B. Perini & Sons, Inc., Framingham, Mass.; Morrison-Knudsen Co., Inc., Boise, Idaho; Peter Kiewit Sons' Co., Omaha, Nebr.; and Utah Construction Co., Salt Lake City, Utah.

Another joint venture of these same firms, this time called Perini, Walsh, Morrison - Knudsen, Kiewit, Utah, holds the $36 million contract for the U. S. half of the Barnhart Island power plant. The Iroquois Control Dam is being built by a combine consisting of Peter Kiewit Sons' Co.; the Arthur A. Johnson Corp., New York, N. Y.; and Al Johnson Construction Co., Minneapolis, Minn. A $14 million job, this was the last of the three major construction projects to be

(Continued on page 35)





Hardpan in the Long Sault Dam area is broken up by a Manitowoc 3500 shovel with an Esco 2½-yard bucket and loaded into a Euclid end-dump to be hauled to a waste area. Blasting was not necessary in this area.



Two Gardner-Denver drills mounted on an Air Trac drill carrier penetrate the ground in the first step of rock excavation at the dam. A Gardner-Denver 600-cfm rotary compressor powers the drill.



A 4,200-foot-long cofferdam between Barnhart Island and the Canadian shore will keep the river flowing through the channel on the U. S. side of the island while the power plant is built. A temporary floating work bridge is in the foreground.



Excavation for footings in the Long Sault Dam construction headquarters area is handled by a Bucyrus-Erie 38-B backhoe. Rocks range from the size of a baseball to huge boulders, and the remainder of the material is fine dust.

power and seaway projects

Excavation prepares way for work on seaway locks

(Additional photo on front cover)

Two huge excavations now in progress mark the beginning of construction on the much-talked-of locks for the Long Sault Canal, a vital section of the St. Lawrence Seaway project. The canal, also being excavated, will by-pass the Long Sault Rapids near Massena, N. Y., and, together with other improvements planned or under construction, will provide a 27-foot channel from the Great Lakes to the deep water of the lower St. Lawrence River at Montreal, Canada.

The upper or Robinson Bay Lock, located near the middle of the 11-mile-long canal, is almost opposite Long Sault Dam, which is now under construction. When completed, the 80 × 800-foot lock will raise and lower ships between the pool above the dam and the intermediate pool of the canal. This, under normal river conditions, is a vertical lift of 38 to 42 feet.

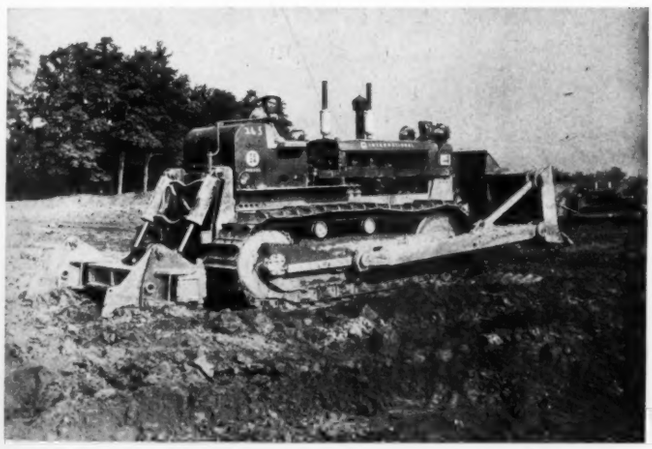
Excavation of 2,575,000 cubic yards of earth for the Robinson Bay Lock is being done by Jack & Jim Maser, Inc., Brownstown, Pa., under a $990,-900 contract with the St. Lawrence Seaway Development Corp., an agency of the federal government.

The second lock of the canal is the Grass River Lock, located at the downstream end of the canal at the junction of the Grass River and the St. Lawrence. This lock will raise and lower ships through the normal 45 to 46-foot drop between the lower pool below the dam and powerhouse and the intermediate pool of the canal.

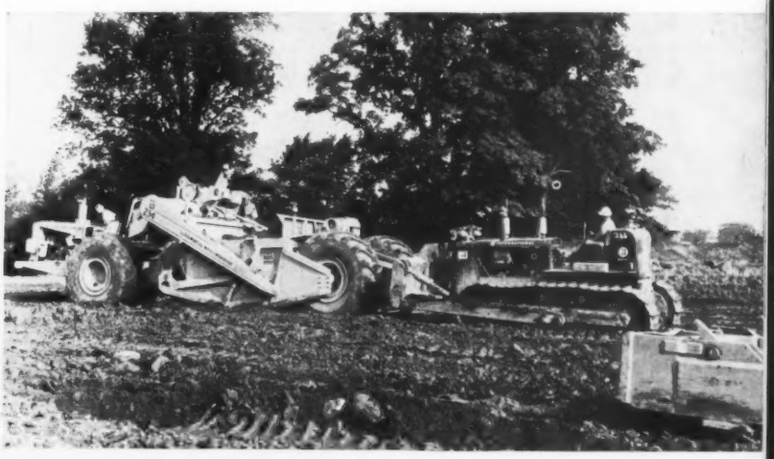
The contract for the excavation of 3,175,000 cubic yards of earth for this lock was awarded to Dutcher Construction Corp., Queenstown, Md., at



Map of area near Massena, N. Y., where most of the work on the St. Lawrence project is located. Not shown is the Iroquois Control Dam, situated about 25 miles upstream from Massena.



The hard glacial till at the Robinson Bay Lock site is scarified by an Ateco ripper attached to an International TD-24 tractor. The ripper can be lifted free of the ground, making the tractor a versatile unit, able to operate as dozer or pusher.



Handling rocks without difficulty, one of the LeTourneau-Westinghouse Model B Tournapulls picks up scarified material. A pushing assist is given by the International TD-24. Jack & Jim Maser, Inc., Brownstown, Pa., is the contractor.



A 23-yard heaping load is disposed of in the waste area by a Model B Tournapull. Only about one million cubic yards of the 2,575,000-yard excavation at the Robinson Bay Lock is going into dikes.



A Tournadozer levels the rock-filled waste material. The disposal area is kept constantly in good shape, for a large amount of dirt is dumped here and equipment must operate over succeeding lifts.

a contract price of $2,197,843. Plans for both locks and supervision of construction are being handled by the Buffalo District of the U. S. Army Corps of Engineers for the St. Lawrence Seaway Development Corp. Contracts for the two locks will be awarded later, and work will begin as soon as the excavation is complete.

Jobs have different problems

The two projects, located within 4 miles of each other, are similar in some respects but their problems are quite different.

On the Robinson Bay Lock, the material is largely a hard glacial till interspersed with boulders. The



The Masers' crew working the second 8-hour shift has the job site illuminated after dark by light towers like this one. A Caterpillar D311 generator plant supplies power for eight 1,000-watt bulbs.

Masers plan to complete the entire excavation with a fleet of rubber-tire scrapers and, as the excavation goes below water level, they plan to pump from sumps or use wellpoint systems.

On the Grass River Lock site, most of the excavation is through a heavy blue clay which contains some rocks. The lower part of the cut is in a hard glacial till or hardpan which underlies the clay. Dutcher is using a combination of big draglines with special haul units, together with rubber-tire scrapers, for excavating. Water is a greater problem on this job, since the lock is adjacent to and at a much lower elevation than the river. To lower ground water in the area, Dutcher has installed 19 deep wells along the river side of the project, and these will be pumped continuously as the excavation goes down.

Robinson Bay Lock

Using a spread of the new LeTourneau-Westinghouse Model B Tournapulls, the crews of Jack and Jim Maser moved the first earth on April 11. The contract for the Robinson Bay Lock calls for work to be completed by January 27, 1956, but the Masers expect to be finished well ahead of that date.

In the early stages, it was very difficult to visualize this excavation as part of a canal. The site is more than a mile south of the river and no work was in progress on the canal excavation when crews began. Making it even more unlike a canal job were the construction crews building roads and railroad and transmission lines on all sides of the site. But an air view or a glance at a map shows this site to be on the straight line of the canal, while the river swings in a huge irregular bend to the north.

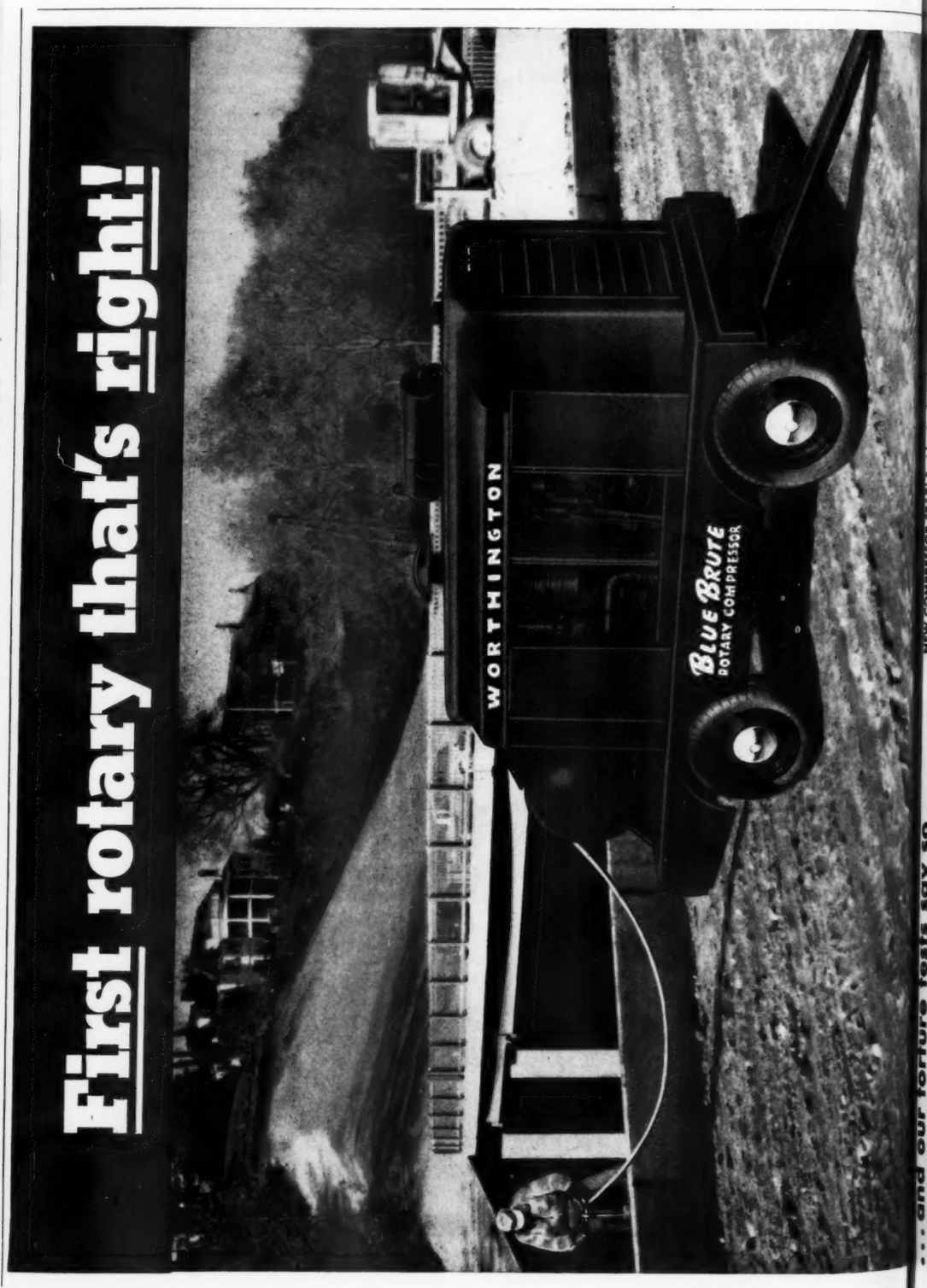
As soon as the area was cleared, the contractor moved in a fleet of eleven of the new B Tournapulls, together with five International TD-24 tractors, Caterpillar No. 12 motor graders, and supporting equipment. The B Tournapulls, which have a capacity of 18 cubic yards struck and 23 yards heaped, are handling the material without difficulty.

Removal of the topsoil and other loose surface material exposed a bed



Heavy clay at the Grass River lock site is loaded in thin layers by a Caterpillar DW21 scraper, aided by one of the new Caterpillar D8B pushers. This is one of two types of earthmoving methods used by Dutcher Construction Corp., Queenstown, Md.

of hard glacial till which required ripping before it could be loaded. Of the three rippers used ahead of the scrapers, two are Ateco units attached directly to the rear of two of the International TD-24 tractors. These rippers are able to scarify the ground at a good rate of speed and are apparently doing a good job. They are especially convenient because they can simply be lifted free of the ground by their hydraulic cylinders, leaving the tractor immediately available for push-loading, dozing, or other service.



The other ripper in use is a LeTourneau, which is pulled by a Caterpillar D8 tractor.

The scrapers are able to get heaping loads in a very short distance with only one of the TD-24 tractors pushing. The hauls are made at high speeds over roads well maintained by a pair of Caterpillar No. 12 motor graders. About a million cubic yards of the best material excavated will be used to build nearby dikes and the remainder will be wasted in a disposal area.

Since it is necessary to dispose of all the waste on a definite area of ground, the waste dumps have to be carefully built so that equipment can continue to operate over the area to place succeeding lifts. The Tournapulls are spreading the material as they dump, and two LeTourneau-Westinghouse Tournadozers are shaping and maintaining the waste area. Although there are many small to medium-sized boulders in the material, practically all of them are being loaded without difficulty by the Tournapulls. A few of the largest are pushed aside by the dozers.

This contractor is working two 8-hour shifts. Illumination of work areas at night is being provided by light towers, each of which carries eight 1,000-watt bulbs in flood fixtures. Each tower has its own power supply, either a Caterpillar D311 diesel-generator or an Onan 10CW gasoline-powered plant.

Grass River Lock

Water and wet clay are the major problems for the contractor on the Grass River Lock. To lower the ground-water level, a series of 19 deep wells were drilled around the river side of the site. These 8-inch wells go through overburden, then 50 feet into the underlying rock. Each well is equipped with a Fairbanks, Morse 5-hp electrically driven vertical turbine pump. These wells will be pumped continuously as the excavation goes down. If the dewatering wells function as expected, the contractor hopes to continue early production records and have the work completed well in advance of the February, 1956, completion date.



The wet clay, which will not dump satisfactorily from many haul rigs, is cleared out of the Movall in a few seconds by an ejector gate driven by cables from the power unit.

Dutcher Construction Corp., which started excavation in May, is using two types of equipment on the job. A fleet of nine Caterpillar DW21 scrapers together with three C Tournapulls work wherever the material is dry enough to make their use economical. Two Caterpillar D9 tractors and one of the D8B Models push-load these scrapers. Though the heavy clay is being loaded in thin cuts, the powerful D9 pushers keep the scrapers moving at good speed as they pick up heaping loads. The scrapers normally work in one area until they get down into wet clay that is uneconomical to load. Then they move to another area while the first is given an opportunity to dry out.

The second type of equipment in use by this contractor is the dragline and haul-unit combination. Two big Marion Model 111 draglines equipped with Yaun 4-yard dragline buckets excavate clay too wet for the scrapers to handle. Draglines digging adjacent to the scraper-loading areas lower ground water in these places so that the soil dries out within a short time.

Since this wet clay is very sticky and will not dump satisfactorily from most types of haul units, the contractor is using a fleet of nine C & D Movalls which dump by means of an ejector resembling a scraper working in reverse. These big 25-yard haul units are drawn by Caterpillar DW21 tractors. The ejector gate, driven by cables from the power unit, removes even the stickiest of clay from the unit in a few seconds. Carrying an average payload of 23 cubic yards, these rigs are moving an average of 4,600 cubic yards of wet clay per 9-hour shift.

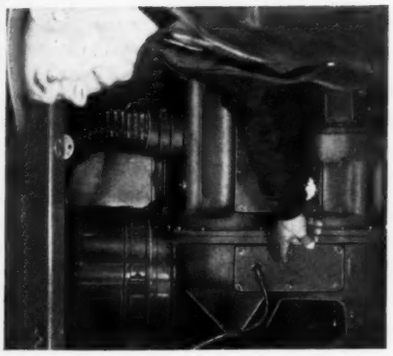
Borrow to build dike

In the early stages of this contract it was necessary to construct a dike in a swampy area along the Grass River. A Northwest 80-D dragline excavated muck and unsuitable soil below water level for the dike, but since none of this clay material was considered suitable for dike construction,



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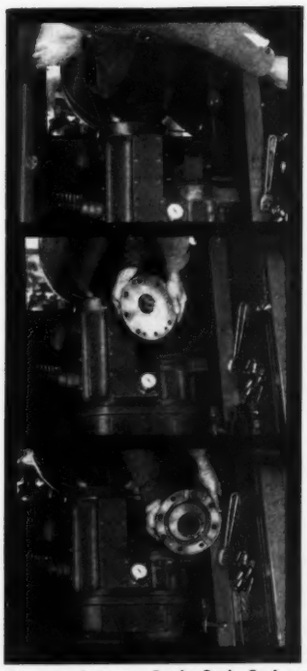


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IF IT'S A CONSTRUCTION JOB, IT'S A *Blue Brute* JOB



Some of the men keeping the project on the move are left to right, J. C. Hays, project engineer on the Grass River Lock job; Col. Paul D. Berrigan, division engineer of the North Central Division, U. S. Army Corps of Engineers; D. J. Dutcher, one of the owners of Dutcher Corp.; and T. F. Airis, area engineer for the corps in the Massena, N. Y., area. *C&E Staff Photo*

the fill had to be obtained from a nearby borrow pit.

A Lorain L-85 shovel with 2½-yard bucket first loaded the borrow into a fleet of six bottom-dump Euclids. As the "Eucs" dumped the material near the end of the dike, a Caterpillar D8 tractor pushed the fill into the excavation dug by the dragline.

Dutcher's entire spread was moving dirt at the rate of more than 24,000 cubic yards per day in two 9-hour shifts when excavation started. This rate was being maintained, even though the longest hauls of the job were being made to waste the dirt in the most remote spoil areas. Shorter hauls are expected to compensate for this and for future complications so that production should not slack off as the job progresses. Of the total daily yardage, more than 15,000 cubic yards was being handled by the scrapers, 9,000 yards by the big draglines and Movalls, and the remainder by the Lorain and the bottom-dump Euclids on the dike construction.

A major factor in keeping this big fleet of machines rolling at maximum speed is the maintenance of haul roads. Three Caterpillar No. 12 motor graders patrol these roads constantly, keeping them bladed smooth. Another important job—that of keeping waste areas in good condition—is done by the six Caterpillar D9 tractor-dozers, which keep working over the disposal areas, cleaning up around the shovels, and shaping the dikes.

Two crews are working 9-hour shifts, so even during the long summer days, some of the work had to be done at night. Illumination for work after dark comes from three of the largest and highest-powered lighting towers in use on construction projects. Built by Dutcher Corp., each tower carries 16 floodlights of 1,500 watts apiece. Two of the towers are powered by Caterpillar diesel generator sets, and the third has a GM diesel generator set. The three give enough light over the entire working area so that night crews can see practically as well as those working in daylight.

Personnel

Jack and Jim Maser, the brothers who operate and control the company which carries their name, have been on the job a good deal of the time, giving it their first-hand supervision. The chief engineer of the firm, L. E. Boyer, handles the job details. On the Grass River Lock excavation, Donald J. Dutcher, one of the owners of the Dutcher Construction Corp., keeps a close watch over job operations. Project superintendent for the company is G. F. Shipman.

Supervision of construction is provided by the Buffalo District of the U. S. Army Corps of Engineers. Project engineer for the Robinson Bay Lock is Wayne Wolfe. Project engineer on the Grass River Lock is J. C. Hays. Area engineer for the Corps in the Messena, N. Y., area, where most of the seaway construction is taking place, is T. F. Airis. District engineer for the Buffalo District is Col. Loren W. Olmstead. Lewis G. Castle is administrator of the St. Lawrence Seaway Development Corp., the agency constructing the locks and other navigation facilities. The Corps of Engineers, agents of the corporation, has its work reviewed and approved —from design through construction —by the corporation. The contractors' work will be accepted on completion by the corporation, which is represented on the location by resident engineer L. M. Hale.

THE END

To the Editor:

Credit to superintendent

In your August, 1955, issue of CONTRACTORS AND ENGINEERS, the article entitled "Concrete buggies work fast and steadily on bridge paving" indicated in the last paragraph that I was largely responsible for devising the expansion joint expedient.

Mr. Charles Spero, the superintendent of the job was the one who designed and put into practice the expansion joint mentioned.

I would greatly appreciate it if you could give credit to Mr. Spero, who actually designed this joint and put it into use.

Very truly yours,
Joseph J. Novellino,
field engineer
Garofano-West Shore-Euclid

The World Over . . .

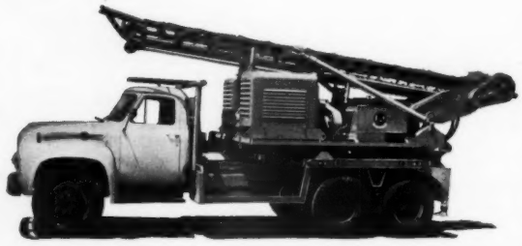
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The ADH Model of Williams Hole Digger is designed for rapid drilling of electric line pole holes, light foundation piers, soil exploration and other jobs that require holes from 8 inches through 36 inches in diameter. It is furnished in stock models for 10′, 12′, 20′, 25′ and 30′ of drilling depth.

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St. Lawrence Seaway Excavation

(*Continued from page 30*)

awarded. As a result, only preparatory work was done this season.

Power development facilities are being constructed by the state and provincial agencies designated by the federal governments of both the United States and Canada. The Canadian development is being constructed by the Hydro-Electric Power Commission of Ontario, while the American portion is being built by the Power Authority of New York State. These two agencies will own and operate the respective power facilities when they are completed. National governments enter into the power development only as parties to the necessary international treaties and the construction of such facilities as are common to both the seaway and power developments.

Since the construction of navigation facilities would be impractical without dams and pools, the seaway and power developments are closely related. The seaway is being built by an agency of the federal government called the St. Lawrence Seaway Development Corp. The work consists of building a canal around the Long Sault Dam and Barnhart Island power plant. Another canal with a single set of locks will by-pass the Iroquois Control Dam.

In addition to the two canals, a considerable amount of dredging is required to provide the 27-foot channel in the pools above the two dams and in the lower end of the Long Sault Canal. These two canals and the dredged channels will provide a waterway with a minimum depth of 27 feet that will by-pass the International Rapids section, formerly a bottleneck for large ships.

Long Sault Dam

Two temporary cofferdams for the first portion of Long Sault Dam have been completed under a $1,913,250 contract by Dravo Corp., Pittsburgh, Pa. This contract also included the excavation of 350,000 cubic yards of overburden in cut G in the unwatered area between the cofferdams.

The Long Sault Dam will be a curved, concrete, gravity-type dam with 30 spillways. The concrete spillway section will extend 1,790 feet across the lower tip of Long Sault Island from the American mainland to Barnhart Island. Maximum height from the foundation to the deck will be 145 feet. Earth dikes with a total length of 4,450 feet will tie the concrete structure to high natural ground on both ends. The over-all length of the structure, including spillway, wingwalls, and dikes, is 7,300 feet.

In order to keep one channel open to carry the flow of the river, the dam will be constructed in four phases. The substructure will be built between the shore and Long Sault Island. Then the river will be diverted over the foundation while the remaining substructure is built. Construction of the upper portions of the dam will then follow in the same sequence.

The downstream cofferdam was designed and built to facilitate this stage construction. From the shore, the cofferdam extends about 1,100 feet to a point opposite the end of Long Sault Island. Here a section of dike about 650 feet long joins the end of the island. This connecting link will remain in place for both cofferdams. When the first stage of construction is completed, the first cofferdam will be removed and a new leg will be constructed across the other channel to Barnhart Island.

For the first stage, the upstream

(*Continued on next page*)



This artist's sketch, looking upstream, shows the location of Long Sault Dam and Barnhart Island power plant which, with the island serving as a dike, will produce 1,880,000 kw from impounded waters. Seaway work at this point consists of dredging a canal to by-pass both dam and power plant.

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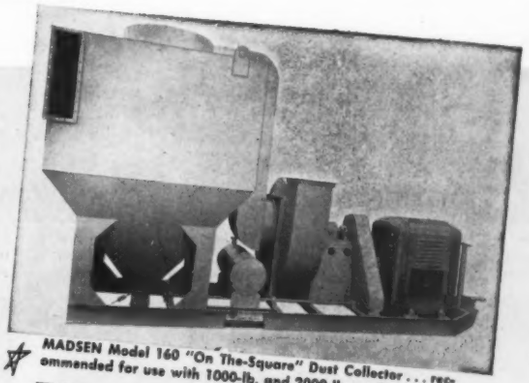
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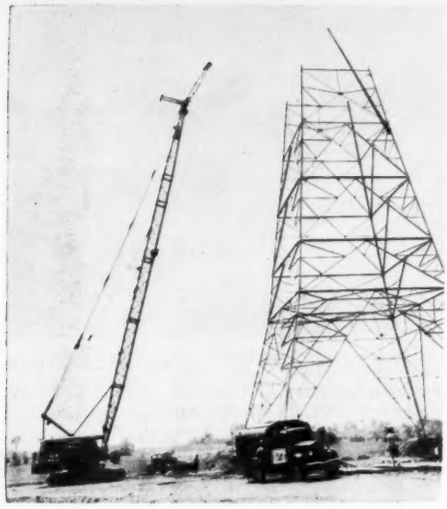


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MADSEN Model 380 "On-The-Square" Dust Collector . . . for use with 4000-lb. and 5000-lb. asphalt plants.

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Before construction of the dam and powerhouse could get under way, power transmission towers and lines had to be rerouted away from the work areas. A P&H 955-ALC with 140 feet of boom and jib sets one of the relocated towers.
C&E Staff Photo

(Continued from preceding page)

cofferdam closed the relatively narrow South Channel extending about 450 feet from the mainland to Long Sault Island. These first cofferdams constructed by Dravo are rock-filled circular sheet-pile cells 65 feet in diameter. Roadways across the top of both the upstream and downstream cofferdams provide access to Long Sault Island and to the island side of the work.

When the cofferdams were complete and the construction area was unwatered, Dravo moved in several shovels and draglines to excavate the overburden in the dry river bottom and in the south abutment of the dam. A fleet of Euclid end-dumps hauled the material to waste areas. Near the south abutment, a thick layer of consolidated glacial till was encountered close to the bottom of the excavation. Draglines could not be used in this hard material. Even excavation with shovels was difficult, but Dravo did the job with a Manitowoc 3500 shovel equipped with Cummins diesel engine and torque converter. When this rig bit into the hardpan with its Esco 2½-yard bucket, the torque converter prevented stalling and kept the load applied even though the bucket stopped. This shovel worked a face about 10 feet high, loading the material into "Eucs" on the lower level. Removal of all material down to rock was required by the contract.

While the initial contract was being completed, the main contract for the construction of the dam was awarded to the five joint-venture contractors, and they moved in immediately. Among the first operations under this contract were the construction of field offices and warehouses, observation facilities for the public, and administration and laboratory buildings for the project.

Preparing the sites and digging foundations for these buildings was rough work because the topsoil contained many boulders. Four Allis-Chalmers HD-21 tractor-dozers quickly cleared the trees and brush from the site and assisted with the removal of the boulders. Two Bucyrus-Erie units, a 54-B shovel and a 38-B backhoe, went right to work on the footing trenches for the buildings, while a Bucyrus-Erie 22-B transit crane handled materials and equipment arriving at the site. A fleet of 17 new Euclid end-dumps started moving some of the excavation and bringing in gravel for haul roads.

As soon as rock was exposed in the dam area, wagon drills began drilling blast holes for the 148,000-cubic-yard excavation job. One of the rigs on the job was a Gardner-Denver wagon drill mounted on an Air Trac drill carrier and powered by a Gardner-Denver 600-cfm rotary compressor.

A major excavation item in this contract is the digging of a channel, known as cut F, across Long Sault Island. The excavation of 6 million cubic yards of material from this cut was sublet from the joint venture by Peter Kiewit Sons' Co.

Barnhart Island power plant

While the preliminary work on the Long Sault Dam was under way, work started on the Barnhart Island power plant. This structure, to span the north or main channel from Barnhart Island to the Canadian mainland, will be 3,120 feet long with a maximum height from foundation to intake deck of 158 feet. The 32 turbine-driven generators to be installed in the powerhouse, capable of producing 1,880,000 kw at full gate, will make this the second largest plant in the world, exceeded in rated capacity only by the Grand Coulee plant on the Columbia River.

The American half of the plant is being built under a $35,849,000 con-

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ON HIGHWAYS, AIRPORTS AND DAMS, new records are being set every day by Southwest Compaction Rollers. Here two 75-ton rollers and Cat DW21 tractors are compacting 6" to 12" lifts with only 4 to 6 passes. They are keeping pace with the largest earth-moving equipment working on 24-hour job schedules in the High Sierras.



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VERSATILE! Any standard 4-section Compaction Roller can be converted in a 3-, 5-, or 6-section roller. Parts for conversion are available as a complete package.

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tract by Perini, Walsh, Morrison, Kiewit, Utah Companies, the same combination building the Long Sault Dam. Construction of the cofferdams was awarded as a separate contract to Mannix-Raymond, Montreal, Que. The Canadian half of the structure is being built by a combine known as Iroquois Constructors, Ltd., Toronto, Ont.

Starting late in 1954, Mannix-Raymond closed the main channel at a point about two miles upstream from the powerhouse site. At this point the required dike was only about 500 feet long. The downstream cofferdam, located immediately below the powerhouse site, is 4,200 feet long and consists of a series of rock-filled steel sheet-pile cells 65 feet in diameter. A roadway over the top of the cells provides access to Barnhart Island from the Canadian side by way of a retractable bridge over the Cornwall Canal.

The two-mile stretch of the river was dewatered late in June, 1955, by four electric pumps which moved up to 80,000 gpm. An estimated 653,400,000 gallons of water was pumped out in a period of 8 days to unwater the huge area. Both the Canadian and American contractors went to work immediately on powerhouse excavation.

This first season, all of these prime contractors pushed the work as rapidly as possible in an attempt to get a maximum amount of concrete in place before the cold weather put a stop to operations. The Long Sault Dam includes an estimated 500,000 cubic yards of concrete, and the American half of the powerhouse is estimated to require a million yards.

Smaller contracts to build temporary and permanent bridges to Barnhart Island, access railroad and highway facilities, and electric power and transmission lines were under construction when the major contracts were getting under way.

Personnel

Consulting engineers for the Power Authority of the State of New York are Uhl, Hall & Rich, Boston, Mass. Work in the field is handled by a staff headed by project manager Frank Matejka and includes assistant project manager Ellis Armstrong, project safety engineer Howard Latham, and concrete engineer Harry McLean. The power authority is represented on the site by resident engineer William Latham. Chairman of the authority is Robert Moses.

Project manager for the joint-venture combine on construction of the Long Sault Dam is Elwin Simpson. The same contractors making up the combine on the powerhouse project have Einar Skinnerland as project manager.

THE END

The United States now has 3,366,000 miles of highways. Two out of every three miles of that network are inadequate and at least one out of every three is unsafe for driving, according to the American Automobile Association.

Prime-mover diesel unit offered as separate item

■ A heavy-duty air-cooled diesel engine formerly manufactured exclusively as the prime mover for a diesel electric generating plant is now offered as a separate item by D. W. Onan & Sons, Inc., University Ave. S. E., Minneapolis 14, Minn.

Rated at 15 horsepower for 2,300 rpm, the Model DRP engine has a 3½-inch bore, 3½-inch stroke, and 67.3-cubic-inch piston displacement. A 12-volt battery charging generator and 12-volt electric starter are included as standard equipment. The unit weighs 516 pounds.



The Onan Model DRP 15-hp diesel engine.

For further information write to the company, or use the Request Card at page 18. Circle No. 55.

New Goodman vp

John S. Newton has been appointed vice president in charge of engineering for the Goodman Mfg. Co., Chicago, Ill. Mr. Newton will be available to various divisions for consultation.





Same equipment—different jobs

Should you change wire rope constructions?

Under normal conditions there is one best size and type of Red-Strand rope for every wire rope using machine. This is the one you use day in and day out on your routine work.

But what about other conditions, the tough job, the unusual job? Suppose abrasion becomes a bigger factor, or unusual strength is needed, or more flexibility? Is a change of rope type in order?

Take a power shovel, for example. Moving dirt, sand, gravel, ore, it works fast handling smooth loads. If it is on a long job of clearing large rock, however, it will move slower and receive heavy jars and shocks. A different Red-Strand wire rope construction will probably absorb shocks better and last much longer than ordinary types.

Take *your* equipment for another example. Whatever your business and however you use wire rope—if unusual conditions arise call in your Leschen technical man. Leschen makes all types, knows the special advantages and qualities of every one, and can help you choose the rope that will do your job best—on shovels or any type of equipment. Leschen's Hercules Red-Strand wire rope is working profitably in every industry.

Your Leschen man can easily be reached through your nearby Leschen distributor. See him soon.

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HERCULES *Red-Strand*® WIRE ROPE

Depend on Leschen's higher-than-rated quality for longer-than-expected service.

LESCHEN WIRE ROPE DIVISION
H. K. PORTER COMPANY, INC.
St. Louis 12, Missouri

HKP



The new Lightning Bug powered wheelbarrow.

Powered wheelbarrow

■ A new powered wheelbarrow has been introduced by United Sales Co., Dept. C-21, 6 Whitewood Ave., Staten Island 10, N. Y.

The Lightning Bug wheelbarrow is available in a junior size powered by a 2-hp gasoline engine and also in a larger 6-hp model. Both units are capable of carrying their full capacity up a 25 degree incline.

Features include a self-tipping tray and easy throttle control by the operator.

The new equipment is suitable for carrying dirt, rock, cement, and other bulk materials. It can also be obtained with a flat pallet for carrying cinder block, brick, and insulation.

For further information write to the company, or use the Request Card at page 18. Circle No. 111.

Aluminum nameplate is easily installed

■ Reynolds aluminum foil, laminated to a layer of improved bonding material, makes the newest thing in metal nameplates. According to North Shore Nameplate, Inc., these metal identification plates are the practical answer to a contractor's need for an easily applied equipment nameplate.

Speedy-Cals come with a cellophane protective strip covering the adhesive back of the aluminum foil. After the foil is immersed in water for about a minute, the cellophane may be removed and the nameplate applied to plastic, metal, or any painted surface. Maximum bonding strength is reached in 24 hours. There is no complicated fastening procedure involving rivets, screws, staples, or nails.

The manufacturer claims the foil nameplates will not crack, peel, chip, or tarnish, and that the original surface will last indefinitely. Speedy-Cals are available in almost any standard color, and in sizes or shapes to fit individual needs.

For further information write to Desk NR, North Shore Nameplate, Inc., 214-27 Northern Blvd., Bayside, N. Y., or use the Request Card that is bound in at page 18 of this issue. Circle No. 128.

Data on drill bits

■ A new general catalog covering the complete line of Hoffman oriented diamond drill bits has been released for distribution.

Designed for quick easy locating of important drill-bit data, the catalog lists sizes, setting charges, weights, and uses for all standard bits.

To obtain this literature write to Hoffman Bros. Drilling Co., Punxsutawney, Pa., or use the Request Card at page 18. Circle No. 87.

New hacksaw attachment for air or electric drills

■ A new hacksaw attachment for air or electric drills has been announced by Thor Power Tool Co., 175 N. State St., Aurora, Ill. Designed for use in cutting wood, metal, plastic, and other materials, the Thor SaberSaw is a lightweight but durable tool recommended for general-purpose use.

The SaberSaw operates with an all ball-bearing reciprocator which whips the blade back and forth. Blades may be easily changed by loosening only two set-screws. A rifle-sight pointer and steady rest rocker permit accurate cuts. The attachment fits any air or electric drill of ¼-inch or more capacity.



The new Thor SaberSaw hacksaw attachment for air or power drills.

The Thor No. 567 attachment weighs only 3 pounds 3 ounces, is 7¼ inches long, and measures 2⅝ inches in diameter at its widest point.

For further information write to the company, or use the Request Card at page 18. Circle No. 78.

Bigger, faster loads with the new LOWBOWL SCRAPERS

18 CU. YD. STRUCK
25 CU. YD. HEAPED

How Caterpillar's new, exclusive LOWBOWL design pays off for you!

Compare these two scrapers — the new No. 470 with LOWBOWL design and the sideboarded No. 21.

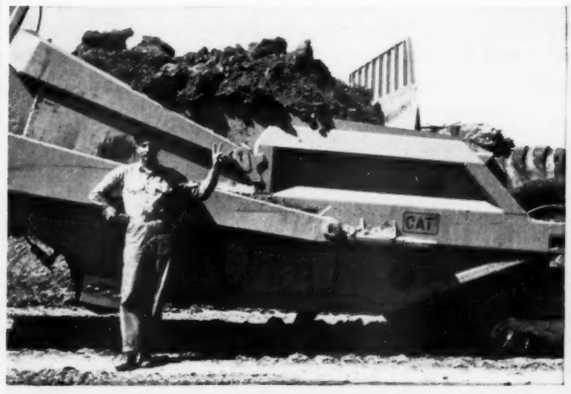
Both scrapers were loaded with the same material under identical conditions.

Result: the No. 470's net load weighed 5000 pounds *more* than the load in the No. 21—which is a profitable margin in favor of LOWBOWL desi

The LOWBOWL concept features a bowl that h been widened and lengthened, and bowl depth h been decreased. Incoming material, meeting less ov head weight and internal friction, is loaded with l resistance clear out to the end of the loading cyc

Result: faster loading for LOWBOWL design. Bo the No. 470 and No. 456 feature this new concept scraper engineering.

New No. 470 Scraper (left) with 5000 pounds more load than sideboarded No. 21 Scraper (right).





"BIG PRODUCTION" FEATUR

MORE POWER—300 HP at 1800 r.p.m. Ten per cent more rimpull. New 6-cylinder Cat Engine. Requires only one operating adjustment. Fan-belt tension regulated by convenient setscrew-adjustment of generator.

NEW TURBOCHARGER, driven by engine exhaust, utilizes energy which would otherwise be lost. Packs air into engine according to engine load, not speed. Delivers more working HP—greater performance.



NEW, BIG WIDE-SECTION 29.5-29 TIRES, oped after 3 years of Caterpillar and manufacturer research on actual ear ing jobs, operate at lower pressure provide greater flotation and tract

LARGE AREA PUSHBLOCK gives better contact, faster loading.

Mobile materials shelter for on-the-job storage

■ An economical, theft and fire-resistant mobile storage enclosure for materials spotted on the construction job has been announced by Material Master, Inc., 3508 W. Irving Park Road, Chicago, Ill. According to the manufacturer, the unit will save contractors the expense and time involved in constructing material shelters on each job.

Constructed of heavy-gage galvanized rolled steel on a heavy hardwood base, the Material Master is available in lengths ranging from 42 to 128 inches. Its width is 45 inches and its height is 50 inches. The storage unit can be easily transported from one site to another, or from one job to the next on a two-wheel trailer towed by a car.



The Material Master provides the contractor with a mobile storage enclosure for materials spotted on the job.

The unit also can be used as a supply station on the job. Suppliers of materials may deliver directly to Materials Masters spotted along the project—a procedure which will save the contractor the cost of re-transporting materials.

For further information write to the company, or use the Request Card at page 18. Circle No. 72.

Line of steel buildings with tapered rigid frames

■ A complete new line of prefabricated steel buildings having a structural system of tapered rigid frames has been announced by The Steelcraft Mfg. Co. The tapered-frame building is being added to and is intended to supplement Steelcraft's present line of truss-type and structural rigid-frame buildings.

According to the manufacturer, an important feature of the tapered frame is the new superimposed fastening system which speeds up the application of the covering to the framework. Extruded holes in the purlins and girts provide a locating point for connecting roof and wall sheets. In this manner one man can attach the sheets from the sides or roof of the building, eliminating labor from the inside and scaffolding. The buildings will thus go up faster and easier, it is claimed.

Steelcraft's deep formed wall and roof sheets have 1-inch-deep ribs spaced 8 inches on center, resulting in a covering many times stronger than ordinary corrugated sheeting or shallow fluted panels.

The buildings are recommended for use as contractor's equipment and maintenance shops, as permanent material-storage installations, and as contractor's offices.

For further information write to The Steelcraft Mfg. Co., 9017 Blue Ash Road, Rossmoyne, Ohio, or use the Request Card at page 18. Circle No. 96.

Explosive-driven cutters for severing cables

■ A cable cutter that is driven by an explosive charge is illustrated in a leaflet from Beckman & Whitley, Inc., 1041 E. San Carlos Ave., San Carlos, Calif. Three models of guillotine-type cutters are shown.

Similar in over-all design, the three types illustrated vary primarily in the diameter of the cables they are able to cut. These include 9/16-inch and 1⅛-inch diameters, and 2¼ × 1½-inch maximum packs. The cutters can sever bundles of cables containing various combinations of structural, electrical, and hydraulic lines.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 108.

←For more facts, circle No. 229

More power, bigger capacity in the new DW20-DW21 TRACTORS

300 HP



THE NEW FOUR-WHEEL CAT* DW20 Series E with new No. 456 LOWBOWL Scraper. Also available with the new W20 Wagon; capacity—20 cu. yd. struck. The new two-wheel DW21 Series C is available with the new No. 470 LOWBOWL Scraper.

the DW20 Series E and DW21 Series C, Caterpillar ers you two new tractors and matched scrapers with clusive LOWBOWL design.

Replacing the DW20 and DW21, world-famed rthmoving pace-setters, these new machines are built deliver a new standard of money-making performance. Their new LOWBOWL design utilizes maximum ctor and pusher power for bigger loads, faster loading es. Their greater power means faster cycles.

For complete facts, see your Caterpillar Dealer!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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NEW DW20-DW21, LATEST EXAMPLES OF LEADERSHIP IN ACTION

F THE NEW DW20-DW21



INCREASED HIGH APRON LIFT provides faster ejection of *any* material.

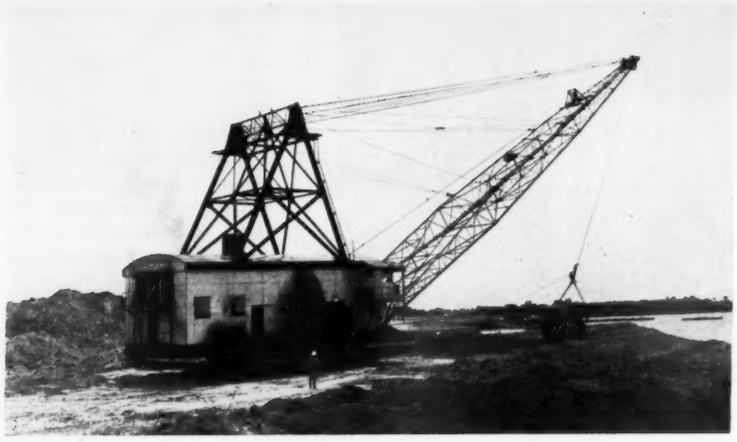
INCREASED SCRAPER GROUND CLEARANCE enables units to work even under extremely "soft" conditions.

HIGH SPEEDS FOR FAST HAULS
DW20 Series E, 2.8 to 32.1 m.p.h.
DW21 Series C, 2.3 to 20.5 m.p.h.

CHOICE OF STARTING METHODS, optional 24-volt direct electric or gasoline starting engine with 6-volt starting motor.

AUTOMATIC CABLE SAVER, standard equipment.

PLUS IMPROVED BRAKE CONTROL, more easily removed DW20 hitch arrangement, better protected DW21 hydraulic steering system and many other new and thoroughly tested Caterpillar features.



With an Esco 15-yard bucket on its 165-foot boom, this Bucyrus-Erie Monighan 450W walking dragline is excavating a major part of almost 4 million cubic yards of material for the Long Sault Canal. *C&E Staff Photos*

Big walking dragline start

Taking 15 cubic yards to the bite, a big Bucyrus-Erie Monighan dragline is gouging a huge trench across Long Sault Island near Massena, New York, to form the upstream section of Long Sault Canal, the important closing link of the St. Lawrence Seaway development.

The major portion of the 3.8 million cubic yards of material in the $1,372,800 contract held by Badgett Mine Stripping Corp., Madisonville, Ky., is being handled by the huge rig. But scooping up earth with its big Esco 15-yard bucket—one of the jobs the rig was designed for—is relatively easy compared to the job it had getting across land and water from the coal fields of Kentucky to the International Rapids section of the St. Lawrence River.

When the contract was awarded early in 1955, Badgett could have dismantled the Monighan 450W and shipped it piecemeal to the seaway site by rail. But dismantling and reassembling of the 650-ton machine would have been a time-consuming and expensive operation. Instead, the Badgett brothers, who must have an adventurous spirit along with their construction know-how, decided to keep the machine as nearly intact as possible and float it in the Great Lakes on streams not normally navigable but at that time swollen with spring rains.

With no time to waste if the rig was to reach the relative safety of the Ohio River before floods receded, Badgett secured a barge measuring 175×50×11 feet and brought it as far as possible up the Pond River. In fact, it went just a little farther, for the crew cut trees and removed obstructions to bring the big barge higher upstream than any similar craft had ever gone before.

Overland for 18 miles

At this point, the barge was still 18 miles cross-country from Madisonville, where the Monighan was located. A machine of this size could not possibly be transported on any vehicle, nor could it be walked on a highway, so under its own power the awkward-looking rig started the long

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*Reg. U. S. Pat. Off.



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MULLER MIXERS and POWER TROWELS set quality standards in their fields

Muller's earliest objective—to make the best possible plaster and mortar mixer and sell it for the lowest possible price—was achieved by: (1) specialization on a few models . . . (2) careful selection of materials and components . . . (3) experienced workmanship . . . (4) sound distribution methods. Other Muller Machines, also, rank high in their fields for the same reasons.



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Made in 2, 4, 6, 8 and 10 cu. ft. sizes. Electric motor or gas engine power. All models have Muller Lifetime Paddle Shaft Seal to protect bearings. Power throwouts on smaller models, built-in disc clutch on larger. Many other features. Priced $180 to $996 FOB Factory. Rubber scraper blades are available for all sizes.

CONCRETE MIXERS

3 models, 3 to 6 cu. ft. capacities, tilting type. Ample size drums, fast mixing action, Timken Bearings, electrically welded, sturdy construction throughout. Power—electric motor or Briggs & Stratton Air Cooled Engines. Prices $230 to $660, FOB Factory.





POWER TROWELS

4 sizes—24, 29, 34 and 44" dia., Briggs & Stratton Engines. Stationary guide ring eliminates hand troweling when finishing along baseboard. Engine speed regulated by governor control on handle.

SEND FOR INFORMATION FOLDERS AND NAME OF LOCAL DEALER

MULLER MACHINERY COMPANY, Inc. Metuchen 15, New Jersey Cable Address, MULMIX

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excavation for seaway canal

Moving sections of bridges in its path and shooting rapids, a 650-ton rig travels by water and land to site



Another walking dragline, a Bucyrus-Erie 5W with 120-foot boom and an Esco 6½-yard dragline bucket, is being used primarily for one of the smaller cuts on the canal through Richards Point.

trek across 57 farms and over five railroads, two main highways, and a number of minor roads.

Timber mats were used to support the machine on its walk since most of the ground was soft from the spring rains. At the highway and railroad crossings, dirt was piled up to build ramps for the dragline. Even walking 24 hours a day, the rig covered the distance from Madisonville to the Pond River very slowly. For nearly a week, it was practically bogged down on one soft muddy stretch while the precious flood waters were gradually receding.

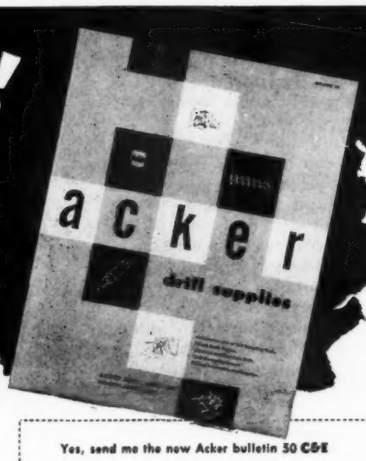
Finally, after a 68-day trip, the Monighan reached the Pond River and clambered aboard the waiting barge. But the eventful part of the trip had just started. One of the first obstacles to be overcome on the trip to Long Sault Island was a bridge, too low to let the dragline pass under and not fitted with a movable span since this is not normally a navigable river. On reaching the bridge, the big rig simply picked up the 130-foot middle span and held it in the air while the barge floated underneath. Then, swinging around, the Monighan carefully replaced the bridge span and continued downstream.

From the Pond River she floated into the Green River and on down to Spotsville, Ky., where the Green River Dam No. 1 blocks the channel. The small lock beside the dam was not nearly large enough for the barge carrying the Monighan, so Badgett decided to move the rig over the dam.

At normal water level, very little or no water flows over the crest of this dam, but during high-water stages, the crest acts as a spillway to carry the excess water. Fortunately, at this time, there was a good flow over the dam. Carefully made measurements of both the water going over the dam and the draft of the barge indicated that the barge could clear the top of the dam by about 1½ inches. With the level of the river dropping and no time to spare, Badgett got the rig over the dam while breathless onlookers were still arguing that it couldn't be done.

(*Continued on next page*)

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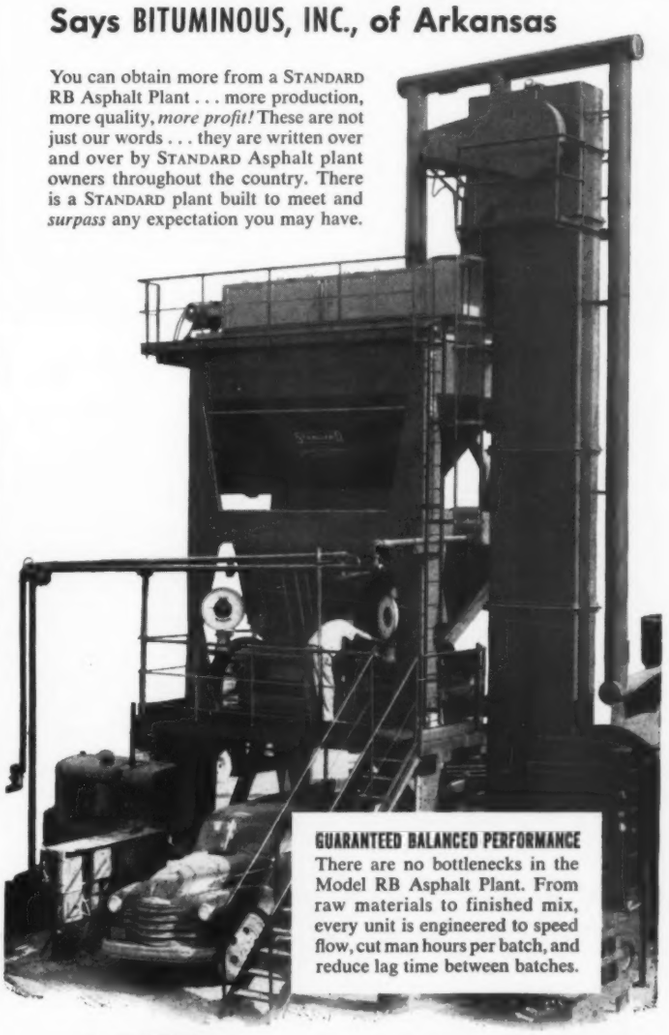
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Now the barge was in the Ohio River. Two tugboats guided it down to Cairo, Ill., then up the Mississippi River to its junction with the Illinois River. From there the barge took the Chicago Sanitary and Ship Canal to Lake Michigan. En route to the lake, the Monighan encountered a number of bridges too small to let the superstructure of the big rig pass by. Some bridges were raised, and a portion of the crane's A-frame was removed to get the rig past these obstacles. Finally the barge floated into Lake Michigan to complete another leg of its voyage.

Towboat breaks loose

A 1,700-hp tug met the barge at Chicago for the trip through Lake Michigan and the Straits of Mackinac into Lake Huron. After sailing the length of Lake Huron, it was a downstream ride for the barge through the St. Clair River, Lake St. Clair, and the Detroit River into Lake Erie. At the east end of Lake Erie the route led into Canada through the Welland Canal to Lake Ontario, then across that great lake to the St. Lawrence River. The trip through the lakes was uneventful, but not so the ride down the St. Lawrence.

The job of maneuvering the heavily loaded barge down the Galop Rapids gave the towboat a real workout and the crew an exciting ride. As the towboat was working its way through the Morrisburg rapids, the tow line snapped, and the barge was left to run the rapids by itself. Using the big 14-ton drag bucket of the Monighan as a combined rudder and sea anchor, the crew guided the barge safely through the rapids without the towboat. Then after shooting one more rapid at Croil Island, the barge was beached at the south end of Long Sault Island, the Monighan walked ashore, and both owners and the crew gave their first real sighs of relief since the barge left Madisonville.

Digging the canal

The section of the canal included in Badgett's contract, is about 2.8 miles long. At the upstream end it crosses Richards Point on the American mainland, then cuts across the end of Croil Island, and through Long Sault Island. A typical section of the canal is 442 feet wide at the bottom with side slopes of 2 to 1. The maximum cut under this contract is about 42 feet, which makes the top of the canal more than 600 feet wide at this point.

The 450W Monighan began the cut from a position 175 feet to the side of the canal center line. From this location, the rig's 165-foot boom permits the bucket to reach the center line of the canal. Excavated material is cast in a spoil bank about an equal distance to the side. After completing this cut, the machine walks around behind the spoil bank and recasts some of the material away from the canal bank. Approximately half of the total yardage is handled twice with this method.

To flatten down and shape the spoil banks, the contractor is using a Euclid TC-12 tractor-dozer. This powerful dozer pushes the material beyond the reach of the dragline so that the center line of the finished spoil bank is 700 feet from the center line of the canal.

The big Monighan, all-electric in operation, is powered by a Cooper-Bessemer 935-hp diesel engine. The Esco bucket weighs about 14 tons empty and can pick up a load of 20 tons. In normal operation, the machine makes a complete casting cycle in about 65 seconds. This continues 24 hours a day 7 days a week, with exception of the downtime required for fueling, moving, lubrication, repairing, and similar work. This machine started excavating late in June, 1955, and is expected to complete its part of the operation before January, 1957.

In the meantime, another dragline, which would be a very large one on almost any other job, is making the cut through Richards Point and Croil Island. This is a Bucyrus-Erie Monighan 5W with a 120-foot boom and an Esco 6½-yard dragline bucket. This machine is powered by four General Motors 6-71 diesel engines coupled to the same transmission. The engines drive a generator which furnishes electricity for the swing, but the hoist and drag are operated directly from the transmission.

As this machine digs the Richards Point section of the canal, it loads the material into a fleet of 10 Euclid bottom-dumps. These haul to the several dikes included in the contract which require more than 500,000 cubic yards of material.

Late this spring, the contract for the remainder of the Long Sault Canal excavation was awarded. This, a much larger contract, called for the excavation of approximately 12½ million cubic yards of material at a price of $6,452,450. The successful bidder, a joint venture of Peter Kiewit Sons' Co., Omaha, Nebr., and Morrison-Knudsen Co., Inc., Boise, Idaho, also has a subcontract under the power development work for a cut across the lower end of Long Sault Island. This cut, to divert water during construction of the Long Sault Dam, includes about 6 million cubic yards of material.

The PK-MK combine is assembling an array of large draglines and other equipment to make the big cuts and build the required dikes. All of this work, scheduled for completion by



Rock loading at Monticello in California.

Efficiency and Economy in Rock Loading



Loading out broken rock in hydro tunnel approach.



In any rock excavation — mine, tunnel or open-cut — time and experience proves that the Eimco 105 Tractor-Excavator is the most efficient, in terms of speed, capacity and over-all costs.

Let us supply the proof of the efficiency of the Eimco 105 for your rock loading job. With a lifting effort of 38,000 lbs. at the bucket lip the Eimco 105 will dig and load faster than a 2-3 yard boom type shovel. The 105 will achieve the results, needed in these days, for tough competitive bidding.

The Eimco Tractor is designed for this efficiency and economy in rock loading. The operator sits up front where he can see. The Eimco is the easiest of all tractors to operate — only two small handles control all movements of the tractor. This provides greater operator efficiency. The tractor is simple in design and strong in construction for greater economy in maintenance and operation. Clutches never need adjustment. The master clutch has been completely eliminated. The old conventional brakes and clutches in the final drive are eliminated. Torque converters are standard equipment on all Eimco Tractors.

Eimco Tractors with Excavator attachments are showing their superiority in rock jobs all over the world. These machines invite comparison — see them at work, compare them piece by piece. For greatest economy and highest efficiency in loading any material, specify Eimco equipment.

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For more facts, use Reader-Reply Card opposite page 18 and circle No. 234

the end of 1957, means that there will be plenty of earthmoving going on in this area for the next two years.

Personnel

J. Rogers Badgett, president of Badgett Mine Stripping Corp., traveled with the barge on most of the trip from Madisonville to the seaway. He has also been on hand to supervise operations most of the time since the work started on the canal. General superintendent for Badgett is H. A. Tedder. Office manager is Paul Long. On the PK-MK contract, J. E. Altig is project manager.

Area engineer for the Corps of Engineers is Thomas F. Airis. Project engineer on the Badgett and PK-MK contracts is Wayne Wolfe.

THE END

Two adjustable wrenches replace 42 fixed sizes

■ Two giant adjustable wrenches manufactured by Owatonna Tool Co., 381 N. Cedar St., Owatonna, Minn., have jaw settings in 1/8 and 1/16-inch graduations to handle an adjustment range from 1⅜ to 4¾ inches. It would require about 42 carbon-steel fixed-size wrenches to cover a comparable range of sizes. The jaw design of the Slim Twin wrenches provides ready access to difficult jobs.

Drop-forged from alloy steel, a 24-inch-long model is rated to withstand 3,500 foot-pounds of torque. A larger 36-inch wrench is rated to withstand a torque load of 10,000 foot-pounds.

Adjustments are secured by a nut and bolt, eliminating slippage.

For further information write to the company, or use the Request Card at page 18. Circle No. 133.

Folder on new level

■ A folder describing its new Model 40-F convertible level is available from the Warren-Knight Co. Features of the completely redesigned level are described and specifications given.

According to the folder, the new Model 40-F contains a new internal focusing telescope of 24 power, with coated optics. The graduated horizontal circle is 4 inches in diameter, with a vernier reading to 5 minutes.

To obtain this literature write to The Warren-Knight Co., Dept. I, 136 N. 12th St., Philadelphia 7, Pa., or use the Request Card at page 18. Circle No. 115.

Compression tester

■ The Model QC-200 compression tester for measuring the psi of concrete is described in a brochure from Forney's Inc., 209 Elm St., New Castle, Pa. Complete data on this 200-ton tester is included.

The Model QC-200 handles concrete blocks up to and including 12×18 inches, and concrete cylinders measuring 6×12 inches. Extra equipment includes a 6-inch-diameter proving gage and a dual, manually and electrically operated, two-stage pump.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 116.

Booklet on conveyors for materials handling

■ Portable and stationary conveyors are illustrated in a booklet from Trowbridge Conveyor Co., 850 Van Houten Ave., Clifton, N. J.

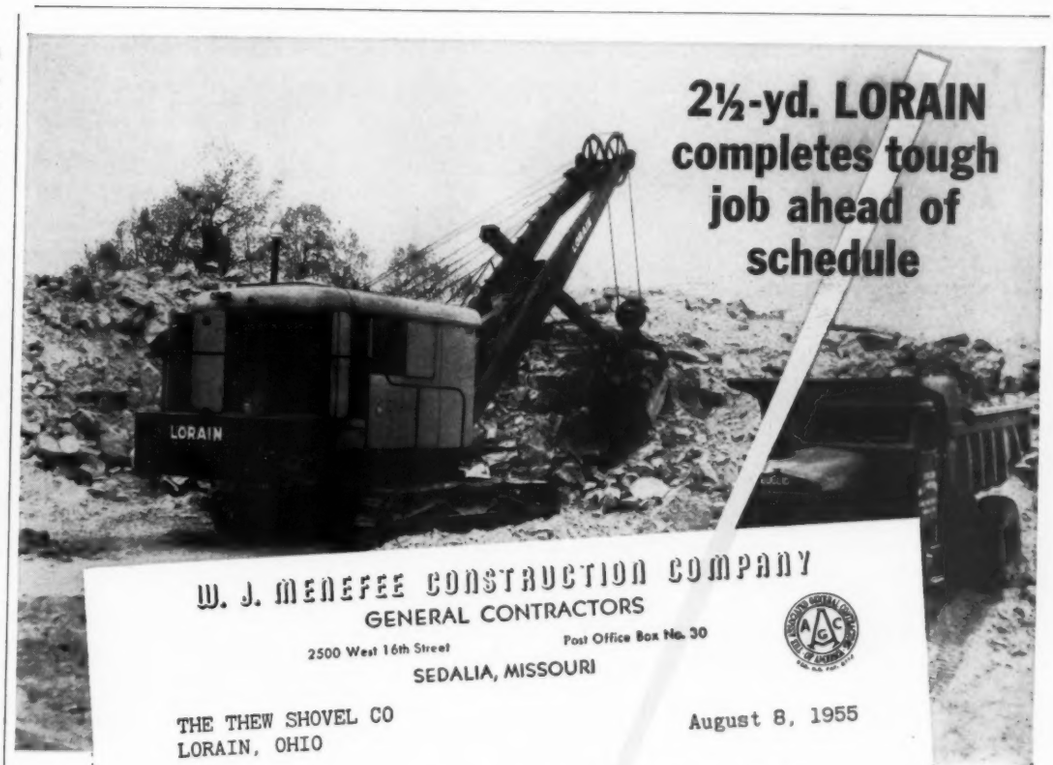
Included in this line is a series of trough-belt conveyors for sand, gravel, cinders, and other abrasive materials. These are available in standard sizes 20 to 60 feet long in multiples of 5 feet and in various widths.

Also shown is a portable bucket loader for elevating bulk materials at steep inclinations. The discharge height is adjustable.

To obtain Catalog 755 write to the company, or use the Request Card that is bound in at page 18 of this issue. Circle No. 107.



"What stop sign?"



W. J. MENEFEE CONSTRUCTION COMPANY
GENERAL CONTRACTORS
2500 West 16th Street
Post Office Box No. 30
SEDALIA, MISSOURI

THE THEW SHOVEL CO
LORAIN, OHIO

August 8, 1955

Gentlemen:

Our new 2-1/2-yard Lorain, model 85 shovel, used on our Highway 66 project in Franklin County, Missouri, is our 9th Lorain machine.

It, like our other Lorain machines, has been satisfactory to us, and its high production, ease of operation and low maintenance enabled us to complete a tough job ahead of schedule.

We feel the Torque Converter is a definite asset to the machine's operation in hard rock production.

If we were in need of additional shovel equipment, we would buy another Lorain.

Yours very truly,

E. W. Menefee, President

HERE ARE THE FACTS ABOUT THE MENEFEE JOB

240 yards of rock per hour—for a total of 170,000 yards of rock . . . that's the story of this 2½-yd. Lorain working on the 630,000-yd. contract on U. S. Highway 66, recently completed by W. J. Menefee Construction Co.

New Catalog on the Lorain "85"

There's a new catalog available on this new, big Lorain that gives you the inside story of its design and performance features. Get your free copy from your Thew-Lorain Distributor or write direct to . . .

THE THEW SHOVEL CO., LORAIN, OHIO

THEW LORAIN

For more facts, use Reader-Reply Card opposite page 18 and circle No. 235

Heavy-duty stud driver offers choice of barrels

■ Flexibility, portability, speed, and ease of operation are features claimed by the manufacturer for the new Remington Model 455 stud driver, a powder-actuated tool designed to simplify a wide variety of fastening operations.

The Model 455 stud driver has interchangeable barrels which quickly adapt the tool to standard or heavy-duty jobs. Impacts of varying force are applied for fastening structural material to hard steel or concrete.

The tool accommodates 25 types of ¼-inch alloy-steel studs ranging in length from one inch to 3¼ inches, or 12 types of ⅜-inch studs of lengths from 1½ to 4¾ inches. The tool cocks only when depressed against the work, and uncocks as soon as pressure is released. Safety guards are easily fitted to the tool, and a design feature renders the machine inoperable if it is inclined at more than a minimum safe angle to a smooth work surface.



The Remington Model 455 stud driver.

The Remington stud driver is constructed of polished aluminum and hardened steel, and is adaptable to one or two-handed operation.

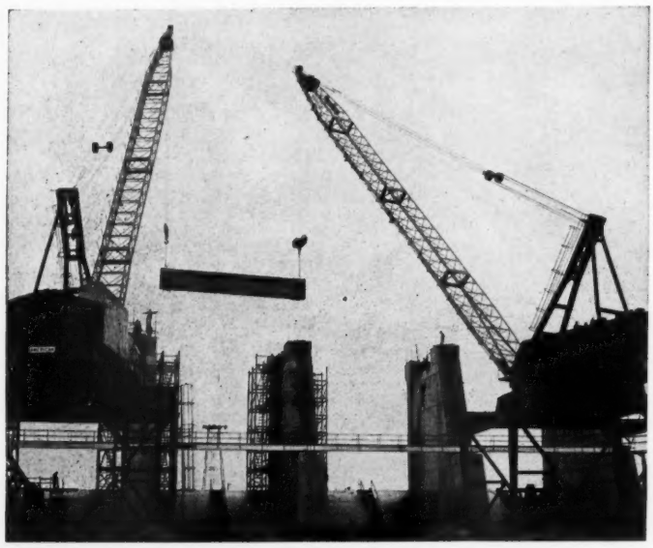
For further information write to Remington Arms Co., Inc., 939 Barnum Ave., Bridgeport 2, Conn., or use the Request Card at page 18. Circle No. 103.

Diesel locomotive for construction use

■ A bulletin from the Locomotive Department of Baldwin-Lima-Hamilton Corp., Philadelphia 42, Pa. describes the company's Model SH-2225 diesel-hydraulic industrial locomotive. Included in the bulletin are tables of characteristics, descriptive information on the component parts, a capability table, and tractive-effort curve.

Available as a 25 or 30-ton locomotive, the Model SH-2225 is designed especially for industrial and construction assignments. It is suitable for light track and bridge structures, and its short wheelbase enables it to negotiate, uncoupled, a 30-foot-radius curve. Extending the locomotive's service life is a torque converter which protects the transmission from torsional vibrations and shock loads between the engine and traction drive.

To obtain Bulletin 2006 write to the Philadelphia plant of the company, or use the Request Card at page 18. Circle No. 129.



A 35-TON precast and prestressed girder being lowered into place in the north row of girders for the spillway bridge.

Unique Vibrator Mounting Enables Spillway Contractor to Vibrate Portion of Girder Impossible to Reach Internally

• **Contractor's ingenuity** has been an important factor in precasting and prestressing operations of the 32-span bridge of massive Garrison Dam which cuts off the Missouri River channel at Riverdale, North Dakota. Precasting and prestressing, although only a small part of the $13,300,000 stage I spillway contract, presented unexpected problems in placing the concrete.

• **The huge concrete slab** of the spillway chute was used as a casting bed for precasting and prestressing by the contractors on the project, Johnson, Drake & Piper, Inc.; C. F. Lytle Company; Foley Brothers, Inc.; Winston Brothers Company, and Donovan Construction Company. Among the many members cast on the job, were 64 girders, 47.33 feet long and 6 feet high. Viber Model PX high speed pneumatic external vibrators were used underneath on the first ten to twelve inches of concrete. It was impossible to reach this concrete with internal vibration due to the seven cables that fill the seven inch web.

• **A novel rig** for mounting external vibrators was so portable that the contractor was able to place this concrete with two VIBER Model PX external vibrators. As concrete was placed, the jack and vibrators were rolled under the girder form between timber supports. Raising the jack forced the vibrator to bear against the form, vibrating the mix. Through use of this rig, the vibrator could be quickly shifted to another position against the form or rolled to the next pour.

• **For further information** on Viber's complete line of internal and external vibrators, contact your authorized distributor or Viber Company, Dept. 77, 726 South Flower Street, Burbank, California.



A WORKMAN opens the valve to start a VIBER pneumatic vibrator held against the lower flange of a girder form by a Blackhawk floor jack. This external rig can be quickly moved to another location.

VIBER CO.

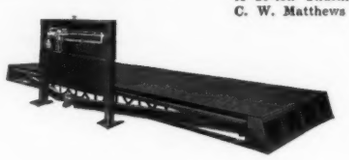
CONCRETE VIBRATORS SINCE 1931

For more facts, use Reader-Reply Card opposite page 18 and circle No. 236

Another Contractor Specifies *Portable Truck* THURMAN SCALES



A 20-ton Thurman Portable Truck Scale owned by C. W. Matthews Contracting Co., Marietta, Georgia.



- ACCURATE
- DEPENDABLE
- PORTABLE
- PROVEN

Day-after-day more contractors are selecting THURMAN Portable Truck Scales. Hundreds of contractors in all parts of the country like the truly portable features of this scale as well as the versatility. For instance, the C. W. Matthews Contracting Co., as illustrated above, has utilized their THURMAN Portable Truck Scale in a permanent type installation. Yet, at a future date, this scale may be easily moved to a different site.

Then too, contractors like the dependable service that they get from THURMAN Portable Truck Scales. Time-proven in all types of installations, Thurman Portable Truck Scales provide a new concept in portable weighing. For detailed information on these scales, as well as prices and delivery, write on your letterhead for Bulletin 601.

OTHER THURMAN SCALES

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Liquid Weighing Scales
Portable Truck Scales
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Wheelbarrow Scales
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Precision Products Since 1918

THURMAN MACHINE COMPANY

Dept. E, 156 North 5th Street, Columbus, Ohio

For more facts, use Reader-Reply Card opposite page 18 and circle No. 237



The H-5, latest unit in the Hydrocrane line, is available as a ½-cubic-yard excavator or 9-ton crane.

Hydraulic truck crane with precision control

■ A new Bucyrus-Erie hydraulic crane for truck mounting has been designed for heavy bucket or crane operations, as well as for high-lift and precision material-handling assignments.

The H-5 Hydrocrane is available as a ½-cubic-yard excavator and as a 9-ton lifting crane. It can be equipped with a standard 2-piece boom that telescopes from 24 to 36 feet in length or with a 3-piece boom that extends from 38 to 50 feet.

With its boom resting over the truck cab, the compact Hydrocrane can travel at speeds up to 50 mph along open highway. The unit has been designed to conform with state-highway transport restrictions.

Additional features include precision fingertip hydraulic control. With every function of the H-5 Hydrocrane hydraulically-controlled, loads can be moved a fraction of an inch at a time. Power comes from a 75-hp Ford engine.

Attachments for the new machine include a low-headroom type, dual-ram, ½-cubic-yard clamshell bucket and a 39-inch-diameter lifting magnet powered by a 5-kw generator.

For further information write to Bucyrus-Erie Co., South Milwaukee, Wis., or use the Request Card that is bound in at page 18 of this issue. Circle No. 34.

Manual on steel bridges

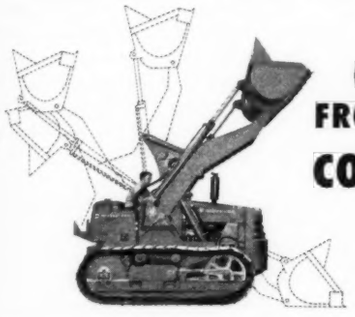
■ Detailed information about various types of bridges and the steel used in them is contained in a booklet published by United States Steel Export Co. Titled "The Use of Structural Steel in USS Highway Bridges," the booklet is designed as a field office manual.

Construction data and specifications for standard beam, deck-girder, pony-truss, deck-truss, through-truss, and adaptable-span bridges is given in the first part of the manual. Subsequent sections are devoted to cantilever, suspension, continuous, arch, and movable bridges. Diagrams and photographs liberally illustrate the text.

To obtain this manual write to the United States Steel Export Co., Room 1007, 30 Church St., New York 8, N. Y., or use the Request Card at page 18. Circle No. 139.

Sales manager appointed by Flexible Road Joint

William V. Gilronan has been named sales manager of the Flexible Road Joint Machine Co., associate of the Heltzel Steel Form & Iron Co., Warren, Ohio. He will direct sales of the company's Flex-Plane line of road equipment, which includes portable concrete-finishing machines, automatic spray curing machines, joint-installing machines, and mechanized dowel and tie-bar installers. He was formerly sales engineer for the Heltzel firm.



NOW
OVERHEAD PLUS FRONT-END LOADING COSTS NO MORE with LODOVER!

This versatile combination overhead and front-end loader costs no more than conventional front-end loaders . . . yet loads *more* dirt, *faster* with your International T-9 or TD-9 than any other loader on the market today!

ONLY LODOVER GIVES YOU

50% MORE YARDAGE—no-turn overhead operation eliminates two turns every cycle, doubles yardage every hour

EXTRA DIGGING POWER—twenty-five degree bucket tilt-back at ground level pries out a full bucket every time

REDUCED TRACTOR MAINTENANCE • SAFE, EASY HYDRAULIC OPERATION • HIGH-SPEED FRONT-END LOADING

A complete line of job-tested attachments makes Lodover the most versatile multi-purpose unit you can buy to boost profits on your job. An on-the-job Lodover demonstration will convince you . . . arrange for one today!

SERVICE SUPPLY CORPORATION
20TH & ERIE AVENUE • PHILADELPHIA, PA.
For more facts, use Reader-Reply Card opposite page 18 and circle No. 238

Tough and Ready for the hardest compaction and land-leveling jobs

TOWNER SCARI-PLOW



Leading contractors* use the Towner Scari-Plow for cutting fill on dams, levees and roads . . . for maintaining road shoulders . . . and for loosening dirt in borrow pits. A powerful three tons in weight and with giant, 28-inch diameter, razor-sharp disc blades, the Towner Scari-Plow gives speed and efficiency to the toughest compaction and land-leveling jobs.

Here's the plow built for tough going! Proved for 15 years, it penetrates the hardest soil with a double-plowing action that leaves the soil loose and finely broken, with no large chunks to clog other machinery.

*Names on request.



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Towner Manufacturing Company
Makers of quality farm equipment for 40 years.
SANTA ANA 28, CALIFORNIA • BLOOMINGTON, ILLINOIS
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Dumping, processing and rolling of the earth in a Missouri Basin Dam are shown here. It takes an orderly sequence and definite high production capacity to move a job like this at its best speed.

Are you worrie abo

By EARL B. MALOON Manager,
Construction Machinery Division,
Southwest Welding & Manufacturing Co.
Alhambra, California

and RAY DAY

Somewhere as you read this, water from a reservoir is seeping through the softened core of an embankment, and a dam is weakening. A plane warmed up on the airfield near you last night, and the earth ruptured below the slab. Less than five miles from where you sit the maintenance crew of your state highway department put in a patch today . . . because soil failed.

If you had to judge, where would you put the blame?

On the engineers? The contractor? Perhaps on the designers, the inspector, or the superintendent? Or maybe, like the proverbial poor workman, you'd blame the tools?

The plain fact is this: those failures happened because somebody stacked compaction percentages against himself. Somebody insisted on doing the job the hard way. Someone selected the wrong roller, assumed all materials going into the roadbed were the same, or got careless about the relationship between soil and moisture.

Are these failures serious? Yes and no. They'll install relief wells and repair the dam before it breaks wide open. They'll learn to build stronger bases because of the airfield mistake, and nobody's going to get too excited about the highway patch.

But the point is that such mistakes can be avoided. They cost money and take time, and it's everyone's responsibility to stop them. Compaction is your concern if you're a contractor, a resident engineer or inspector, a superintendent or foreman, or cat-skinner. You can do much on your job to get better fills faster and cheaper. Don't let anyone tell you otherwise.

There's a direct relationship between the degree of compaction required, and what it costs. High-class results usually cost more than moderate compaction. Yet, many times, it's possible to stack certain things so they work in your favor. They include little tricks like making rainfall work for you, digging a borrow pit so the soil is mixed as much as possible, bringing a fill up so it doesn't have low spots to catch ponded water, selecting really heavy-duty rollers when compaction requirements are high, blending soil and moisture before rolling if possible, and using standard and giant rippers for loosening material and pre-watering in the borrow pit.

Many times these things can be



Firestone NYLON TIRES

YOU can move more dirt at lower cost with Firestone Nylon Tires because they are specifically engineered to cut downtime losses on the toughest job. The treads give more traction and they are extra tough to resist cutting. Double thick sidewalls give added protection against cuts and snags.

The new Firestone Safety-Tensioned Gum-Dipped* nylon cord body insures longer tire life and more retreads. The Firestone Safety-Tensioned Gum-Dipped* nylon body gives the greatest protection against impact breaks . . . flex breaks . . . heat failures . . . and water damage.

Let your Firestone Dealer or Store show you how Firestone Nylon Tires will cut downtime, give more retreads and keep tire costs at a minimum.

*T.M. Reg. U.S. Pat. Off.



A TIRE FOR EVERY ROAD, LOAD AND CONDITION OF SERVICE

GROUND GRIP • ROCK GRIP • TRACTION ROCK • ALL NON-SKID • ALL TRACTION • RIB EXCAVATOR

When you buy new equipment or replacement tires, specify FIRESTONE

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about compaction?

If you are, learn to rig the percentages with you. Your soil compaction will improve when you do



Even on highway fills, where sheepsfoot rollers are generally used, the trend is toward heavier compactive effort. This photo shows a battery of heavy sheepsfoot rollers at work on a typical freeway job.

done simply by sharpening up an organization, so that benefits are increased without upping costs commensurately.

What are the fundamentals?

The fundamental steps are simple. They are:

1. Learn to understand what compaction is.
2. Grasp the importance of compacting earth for different purposes.
3. Learn the fundamental tricks common to all theories on compaction.
4. Study modern equipment, because high compaction was never possible, practically speaking, until machinery to do the job was developed.

Mastering these steps is not too difficult. There will come a time when more men on construction jobs are familiar with all types of specifications. And construction will be a better industry for it.

Conditions have changed

Progress in the use of soils as a construction material, made in the past 15 years, may confuse a man interested in fundamentals. The tendency to ask embarrassing questions will be strong. What's a simple definition for compaction? Why so many methods? Why are sheepsfoot rollers used on one job, pneumatics on another, grids and other types somewhere else? Which saves money and does the best work? What's the best way of testing, soil blending, or putting in water?

To appreciate these questions and their answers, it is necessary first of all to consider what compacted soil these days is being called upon to do. 15 years ago nobody even thought of putting a 500,000-pound airplane on compacted soil and pavement. That's why present airfield specifications are rigid. So are other requirements, as soil assumes its role as a construction material the same as cement or lumber.

What is compaction?

Compaction is simply the business of forcing small soil particles between big soil particles. Do it until no voids are left, and you have density close to that of solid rock. Try this simple experiment mentally. Take a cubic foot of dry soil: dust, let's say. Beat

(*Continued on next page*)



New Oliver Jet Trencher for OC-3 Loader hooks up or detaches in 90 seconds

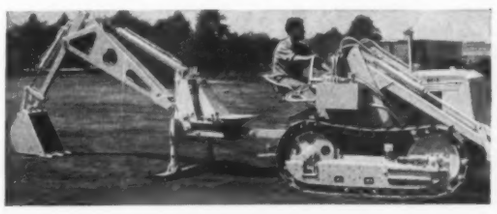
Exclusive 2-point hitch does the trick!

This new Jet Trencher is the perfect addition to the famous Oliver OC-3 Loader. It digs to 12 feet and lifts to 11½ feet—adds extra versatility without limiting tractor maneuverability or loader operation.

The exclusive hydraulic 2-point hitch makes hookup and removal a simple, one-man operation from the tractor seat. When the trencher is removed, the hitch holds the loader counterweight or quickly takes a number of handy attachments—scrapers, scarifiers, etc.

All new in design and construction, the Jet Trencher places all stress and strain on the trencher frame, not on the tractor, Its new mounting, offset to the side of the tractor, gives unmatched visibility and permits close parallel digging to walls, foundations. Full 180° boom swing gives straight side dumping.

Working from the loader hydraulic system, the Jet Trencher has powerful down pressure for digging through tough soil. Hydraulic control gives smooth, cushioned operations and insures long-life, low-upkeep operation. See this new trencher and OC-3 Loader. Ask your Oliver Industrial Distributor for a demonstration.



Hydraulic 2-point hitch is adjusted to fit slots on sides of trencher as tractor is backed into position. Snap-on fittings connect hydraulic lines—seat is swung around and trencher is ready to operate. When not attached, trencher rests, as shown here, on stabilizer blade and bucket.

THE OLIVER CORPORATION

400 West Madison Street, Chicago 6, Illinois

a complete line of industrial wheel and crawler tractors

For more facts, use Reader-Reply Card opposite page 18 and circle No. 241

the cube it's in, shake it down by vibration, put it under a sheepsfoot roller, beat it with a pneumatic gun, or run a pneumatic compactor over the sample. For each of these types of compactive effort it will weigh X number of pounds per cubic foot.

Now, mix increasing percentages of water thoroughly with identical samples. Each lubricated particle begins to slide more readily in place under compactive effort. For each percentage point of water added, the compacted weight (density) increases. Finally the sample reaches its greatest density at a point called optimum moisture. Add more water beyond there and moisture begins to crowd into soil pores. That's when the fill becomes unstable and construction equipment bogs down. Carry it on to saturation and you have mud, an obviously undesirable extreme.

Plot these percentages, and the typical weight-moisture relationship shows as a parabolic curve. The high point of the curve is that soil's best density.

Believe it or not, engineers are practical. They recognize the difficulty of controlling moisture on a big fill within absolute limits of tolerance. So they figure their designs just close to the top of the curve; seldom at its absolute peak. It allows compaction equipment latitude to do its job. It can also lead to trouble if too many chances are taken in watering and spreading material.

Modern density requirements on almost any fill make it desirable to use every percentage trick in the book. Mixing can be improved by loading scrapers downhill. Moisture distribution by pre-wetting can be enhanced. Mechanical blending is excellent help. So is attention to lift thickness, and awareness of wind, sun, and changing weather. Working in your favor, these factors help rollers do more work, lower costs, increase production, and create good personal reputations.

Compaction purposes differ

The purpose of compaction is not always the same. In a dam core, compaction aims to hold the earth as an impenetrable barrier when seepage from the reservoir moves through the embankment. Engineers plan compaction in a dam so that percolation through the impervious barrier never reaches a danger point, with seepage through pervious zones always under control.

Airfield compaction has a different purpose. It not only densifies the soil; it adds to its strength or bearing value. Planes grossing 300,000 pounds now are being handled regularly, and limits are moving rapidly toward 500,000-pound ships. There's definite need for compaction approaching the theoretical ultimate, to depths of 5 or 6 feet, below the pavements which carry such heavy planes. These fills, of course, are planned for drainge so they stay as dry as possible.

Airfield design conditions differ widely from a dam. For example, a California field recently was beefed up for heavy planes. By using 100-ton pneumatic compactors and rotary mechanical soil blending, instead of dam-building methods, densities of 100 per cent and CBR values as high as 100 then were possible. Dramatic increases like this, incidentally, are more or less typical of sandy soils.

Engineers ask for their highest compaction results on airfields, but requirements on highways, dams and building foundations also are increasing steadily. Obviously the last 5 per cent of the Modified AASHO specification costs money. But if the increase in strength and bearing power lets the thickness of compacted grade be reduced, the extra cost is more than justified.

Highway compaction is a modification of airfield work. In most states, maximum axle loads are 18,000 pounds, so road pavements generally do not get the heavy punishment the parking apron or warmup stands do on an airport. Highway engineers also try to keep their fills from becoming saturated with ground water. For that reason, highway compaction —like its airfield prototype—is generally done on the dry side of optimum.

Better understanding and appreciation of these considerations, ingrained in the minds of dirt men, will make better fills, improve roller performance, and help engineers to get a better job at lower cost.

Equipment selection

Nothing is more important on an earth fill than the selection and use of equipment. Picked wisely, the right roller delivers the engineer's requirement at low relative cost to the contractor. Selected unwisely, the wrong rolling equipment interferes with productive hauling capacity of other machines on the job, boosts costs, denies the engineer the compactive result he needs, creates delay and trouble all the way around.

In some places, like pipeline backfill in a desert, earth can be used uncompacted. In others, a light-duty sheepsfoot roller might be adequate . . . say for the subgrade of a county road. The heavier type sheepsfoot roller still has a definite place in higher-type fills, particularly when soil conditions are favorable.

On the highest-type fills, the heavy rubber-tire compactor has demonstrated its ability to densify heavier lifts with fewer passes than any other

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INSTO-HOT SALAMANDERS

FOR CLEAN, QUIET, PORTABLE HEAT USE THE INSTO-HOT SALAMANDER BEST SUITED FOR YOUR JOB



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INSTO-HOT No. 1405 CYLINDER MOUNTED

No. 1405 Cylinder Mounted Salamander when attached to the No. 35 Insto-Gas Cylinder makes a self contained unit, that is easy to carry anywhere. No pressure regulator required. Maximum BTU input over 150,000 per hour.

INSTO-HOT No. 1410 FLOOR-TYPE



No. 1410 Floor-type Salamander is attached to the cylinder by means of high pressure Insto-Gas Hose. No pressure regulator required. Maximum BTU input over 150,000 per hour.



INSTO-HOT No. 1415 WITH AUTOMATIC CONTROLS

No. 1415 Salamander is equipped with 100% safety shutoff valve with Thermopilot (AGA Approvel Controls). The New No. 1415 has a pressure regulator mounted on the Salamander which makes it unnecessary to have cylinder near by. Perfect operation with over 50' of hose is assured. Maximum BTU input 100,000 per hour.

Recommended for use with all three Insto-Hot Salamanders — the unique INSTO-GAS No. 35 — a large capacity cylinder engineered for stability, portability, safety and long period operation!

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In Canada: W. H. CUNNINGHAM & HILL LTD., Toronto 2, Canada

INSTO-GAS CORPORATION, Detroit 7, Michigan C&E

Send facts on Insto-Hot Salamanders and Unique "35" Cylinder.

NAME_____

ADDRESS_____

For more facts, use Reader-Reply Card opposite page 18 and circle No. 242



2739—6th Ave. So. • Seattle 4, Wash.

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TRACTOR MOUNTED TRENCHER



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Digs trenches up to 5½ ft. deep, 7½" or 10" wide. Speeds up to 350 ft. per hour.

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Anywhere a trench is needed

Mounts on Late Model Ford Tractor

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Manufactured by

The Mississippi Engineering Co., Inc.

Grand Mound, Iowa

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One of the big advantages to the contractor is the modern pneumatic roller's ability to handle thicker lifts, (left), so that large rocks in the fill do not interfere with getting a good job. Sometimes a combination of sheepsfoot and pneumatic rolling is the answer. Both machines in the photograph at the right exemplify the importance of providing full oscillating weight transfer.

instrument. Also, the development of pneumatic rolling has made it possible to build fills of a type not possible before. There are many fine pneumatic rollers on today's market, not the least of which is the line manufactured by Southwest Welding & Manufacturing Co.

Vibratory compaction, which also has entered the field, seems to have a place particularly in granular soils. Much more research on this and other types of rolling, now and in the future, will doubtless do much toward the perfection of vibratory compaction.

Sheepsfoot or pneumatic?

If you want amusement sometime, get two soils experts together and ask this question, "which is best, the sheepsfoot or pneumatic roller?"

Actually, it's probably not a fair question. There are places where a sheepsfoot roller will do a satisfactory job, and there are places where pneumatic rolling definitely is indicated. Certain conditions respond best if a combination of the two is used.

R. R. Proctor of the Los Angeles Department of Water and Power and one of the deans of soil compaction still gets some of the finest fills made anywhere, with sheepsfoot rollers. His fills are of the dam type as a rule. They impound water. But the 1955-model Proctor fill, even with sheepsfoot rollers, reflects the steady trend toward heavier compactive effort. The sheepsfoot rollers which Southwest Welding now makes for Proctor's work have enormous foot-bearing pressures: as high as 4000 psi.

The heavy rubber-tire pneumatic compactor represents the best gift to soil compaction in recent years. Back in 1932, contractors began to notice that loaded scrapers, far heavier than the "foot-sheep tamps" then in use, delivered high compaction in the area under the tires. The modern pneumatic compactor sprang from this basic observation.

Heavy pneumatic rollers first became popular on airfields during World War II. Then came the trend toward the use of pneumatics in work other than airfields. At Dorena Dam, in Oregon,—Corps of Engineers specifications as an experimental measure called for the pneumatic rolling of a gravelly zone material containing cobbles. The pneumatic roller on this and succeeding installations proved its ability to handle lifts about twice as deep as had been customary. And as roller weight increased, it did the

(*Continued on next page*)

McConnaughay EMULSIFIED ASPHALT PLANT MIX
For Stock-Piling or Immediate Use On Any Paving or Patching Job





Above—Stockpiling emulsified asphalt, limestone mixture (Open-Graded Plant Mix, Specification No. 2, wearing surface aggregate gradation with AE-200 emulsified asphalt). Left—Manufacturing emulsified asphalt stockpile mixture with McConnaughay JR Mixer, production rate 4 tons of mix per minute.

With McConnaughay Emulsified Asphalts and either damp or dry aggregates, these mixtures may be prepared either hot or cold. They may be either open-graded or dense-graded types . . . with the use of limestone, slag, trap rock, gravel, shell, sand, or any combinations of these materials.

The same mixtures may be made cold for stock-piling or immediate use in extensive paving or smaller maintenance jobs. In either case, they are highly resistant to water during the preparation and after application. Proper selection of aggregates and Emulsions also gives you assurance that stock-pile mixtures will remain fully workable for long periods . . . up to twleve months.

McConnaughay Licensees are fully equipped to take on complete contracts or provide the laboratory facilities, Emulsions, and technical services required on any job. If you are figuring on road, street, or general paving, get in touch with the nearest McConnaughay Licensee (list at right) or contact the main office.

SPECIFICATIONS OF THESE COLD-MIX PROCESSES AVAILABLE ON REQUEST

1 — Penetration Macadam, 2 — Open-Graded Plant Mix, 3 — Open-Graded Road Mix, 4 — Dense-Graded Plant Mix, 5 — Dense-Graded Road Mix, 6 — Mat Coat, 7 — Seal Coat, 8 — Sand Mix, 9 — Sand Honing, 10 — Patching, 11—Mastic-Mix, 12—Driveway Construction

McCONNAUGHAY LICENSEES
Operating K. E. McConnaughay Emulsified Asphalt Plants

Berkshire Asphalt Co., Inc.
620 Berkshire Ave., *Springfield, Mass.*
James Huggins & Sons, Inc.
Medford & Commercial Sts.
Malden 48, Massachusetts
C. C. Plumb, Elmwood Station
P. O. Box 65, *Providence 7, R. I.*
C. C. Plumb
Portland, Connecticut
Albany Asphalt & Aggregates
75 State St., *Albany, New York*
Knight Paving Products, Inc.
1655 Union Rd., *Gardenville, N. Y.*
Knight Paving Products, Inc.
Vine Street, *Ithaca, New York*
Knight Paving Products, Inc.
1980 *East* Ave., *Rochester 10, N. Y.*
Knight-Bitumen Corp.
Watertown, New York
Seaco, Incorporated
2700 Industrial Drive, *Columbia, S. C.*
E. A. Mariani—Emulsified Asphalt
Hooker's Point, *Tampa, Florida*
Pan-Am Southern Corporation
P. O. Box 2, *New Orleans 6, La.*
(Also serving Alabama and Mississippi)
Asphalt Products Co., Inc.
Powell Ave., *Nashville 11, Tenn.*
Bituminous Materials Co.
P. O. Box 267, *Terre Haute, Ind.*
Wabash Valley Asphalt Co.
Terre Haute, Indiana
Brookman Construction Co.
17th & Gharkey Sts., *Muncie, Ind.*
Fauber Construction Co.
Lafayette, Indiana
Asphalt Materials & Construction, Inc.
960 E. 22nd, *Indianapolis 2, Ind.*
Ready-Mix Asphalt, Inc.
P. O. Box 882, *Fort Wayne 6, Ind.*
Walsh & Ikeler
R. R. #2, *Gary, Indiana*
Bituminous Materials Co.
416 S. Water St., *Jackson, Mich.*
Bituminous Materials Co.
318 Atlantic St., *Bay City, Mich.*
Emulsions, Inc.
Lawrenceville, Illinois
Bituminous Materials & Supply Co.
415 Maple St., *West Des Moines, Iowa*
Plants:
Spirit Lake, Iowa
Iowa City, Iowa
Menlo, Iowa
Doherty and Swearingen Co.
53 Main St., *Yarmouth, Maine*
Eastern Representative:
John A. Dow
157 Church St., *New Haven 10, Conn.*

K. E. McCONNAUGHAY LAFAYETTE INDIANA
EMULSIFIED ASPHALT PLANTS AND PROCESSES

For more facts, use Reader-Reply Card opposite page 18 and circle No. 245

Type soil	Type roller	Unit weight	Passes	Lift thickness	Per cent of max. density
Silty gravel	Sheepsfoot	450 psi foot pressure	6	6	96
Same	Sheepsfoot	450 psi foot pressure	8	4	97
Same	Pneumatic	30000 lb. wheel load	4	12	94
Silt	Sheepsfoot	675 psi foot pressure	12	6	88
Silt (same soil)	Pneumatic	17500 lbs. wheel load	4	12	96
Lean clay	Sheepsfoot	675 psi foot pressure	12	6	90
(same soil)	Pneumatic	17500 lb. wheel load	4	12	94
Silt	Sheepsfoot	465 psi foot pressure	12	6	93
Silt (same soil)	Sheepsfoot	465 psi foot pressure	12	9	90
Silt (same soil)	Sheepsfoot	675 psi foot pressure	12	6	94.5
Silt (same soil)	Sheepsfoot	675 psi foot pressure	12	9	90.5
Silt (same soil)	Pneumatic	17500 lb. wheel load	4	8	96
Silt (same soil)	Pneumatic	17500 lb. wheel load	4	12	96
Silt (same soil)	Pneumatic	17500 lb. wheel load	4	16	95
Decomposed granite	Sheepsfoot	350 psi foot pressure	4	16	92.6
Same material	Grid	594 lbs. per lin. inch	4	12	92.8
Same material	Pneumatic	17500 lbs. wheel load	4	16	94.6
Same material	Pneumatic	17500 lbs. wheel load	8	16	96

(*Continued from preceding page*)

job with about half as many passes as before.

The first direct comparison between the two types of rolling was made at Isabella Dam, Calif. 42,000-pound sheepsfoot rollers were used on the first dirt contract; pneumatics with 20,000 pounds of weight per wheel and 80 psi tire pressure on the second job. Soils included disintegrated granite, gravelley clayey sands, and silty sands . . . all slightly plastic. Specifications called for 12 sheepsfoot roller passes on 12-inch lifts on the first job. On the second contract, 6 passes of a Southwest C-50 compactor with Caterpillar DW-20 prime-mover power, working on 18-inch lifts, were used. In both cases, an analysis showed that 70 per cent of the tests taken went over 94 per cent of Modified AASHO density. On this job, incidentally, a Southwest Giant Ripper was used for the first time to loosen and pre-wet the borrow pit.

Pneumatics have also proved their ability where water is scarce to handle dry desert sand in 2-inch lifts, giving a fair degree of compaction under almost impossible conditions.

One of the most frequently neglected places, compaction-wise, are the restricted areas around highway structures and the like. On a recent freeway contract in Los Angeles County, a contractor used a 25-ton pneumatic roller in such a spot on an experimental basis. He was pleasantly surprised. Working on 10-inch sand lifts close to the concrete, the machine developed 98.5 average Modified AASHO densities on 10-inch lifts in only 4 passes. The idea increased the amount of cubic yardage handled per shift in this critical spot about 420 per cent. From a contractor's viewpoint, it emphasizes the importance of over-all cost considerations is in selecting roller equipment. And that does not attempt to rule out the hand-held gun, for there are many places still where it is the best tool to apply to the job.

Pneumatics generally will handle thicker lifts than a sheepsfoot, so that if rocks or cobbles are present, they can usually be incorporated into the fill without undergoing the expense of their removal. Pneumatics will also compact a fill at a higher moisture content than a sheepsfoot roller. Dams often are built under these conditions, particularly where soil drying is expensive or where compaction on the wet side is desirable. The ponderous weight of a pneumatic will overcome pore pressures in the soil, squeezing some of the excess water up to the surface where it can evaporate. For some peculiar reason also, tests have shown that a pneumatic rolled fill has unusually good ability to shed rainwater.

The Corps of Engineers and the U. S. Bureau of Reclamation have concluded from their tests that most earth fills can be compacted by the heavily loaded compactor with about half the passes and for about half the cost of comparable results with the sheepsfoot.

Rolling cost considerations

The primary considerations in the selection of compaction equipment are results, and costs. The cost factor is decidedly important to the contractor; almost as much so to the engineer dependent on a benevolent U. S. Congress or State Legislature for funds.

It becomes sound economics, therefore, to use the roller which will get the job done right at the least cost. Heavy-duty pneumatic compactors, because of their ability to develop high densities in thicker lifts than sheepsfoot rollers, are becoming more popular than ever before. Hooked by a gooseneck yoke to a prime mover like the Caterpillar DW-21, they will handle far more cubic yards of material in a days time than their

"Here's the plant that hits specifications easier and closer than any other plant we've ever operated . . ."

says **STREET BOYD** of **STEINBERG-BOYD CONSTRUCTION CO.**
TULSA, OKLAHOMA



PAVING STONE		CLASS A	
OKLAHOMA SPECIFICATIONS	CEDARAPIDS PRODUCTION % PASSING	OKLAHOMA SPECIFICATIONS	CEDARAPIDS PRODUCTION % PASSING
100% passing 3"	100%	100% passing 1½"	100%
95-100% passing 2"	97.7%	90-100% passing 1"	95.9%
70-95% passing 1½"	85.1%	------passing ¾"	70.7%
50-85% passing 1"	61.7%	25-60% passing ½"	29.7%
-----passing ¾"	34.6%	-----passing ⅜"	12.4%
15-40% passing ½"	19%	0-5% passing No. 4	1.4%
-----passing ⅜"	10.6%		
0-2% passing No. 4	1.9%		

"... and we're getting 180 to 250 TPH in Paving Stone, 140 to 160 TPH in Class A from our new Cedarapids Portable Crushing Plant."

You can hit specs right on the nose, too . . . outproduce any comparable plant . . . and do it at the low production costs that step up your profit. That's some of the reasons Steinberg-Boyd is so well satisfied with their new Cedarapids Unitized Portable Crushing Plant. It consists of a 2540 Portable Primary, an 1836 Twin Jaw Scalping Unit and the brand new Cedarapids Model 30C Secondary Plant featuring the Symons Cone Crusher. It's a plant designed to meet the big output and exacting gradation demands of modern turnpikes and toll roads.

Best of all, this set-up has all the features that *make money for you* on every job.

THESE EXCLUSIVE CEDARAPIDS FEATURES ASSURE BETTER GRADATION BIGGER PRODUCTION LOWER OPERATING COSTS

1. VIBRATING GRIZZLY
. . . by-passes most of the undersized material and fines. Increases primary output up to 25%.

2. TWIN JAW CRUSHER
. . . increases primary crushing production up to 40% over single jaw units and is especially efficient in abrasive rock or gravel.

3. HORIZONTAL VIBRATING SCREEN
. . . steps up screening capacity because the horizontal position of the screen cloth gives 12½% more screening area than an inclined screen of the same length.

4. SYMONS® CONE CRUSHER
. . . produces high tonnages of uniform, fine-crushed aggregate, even in the hardest or most abrasive rock or gravel. The Symons Cone Crusher, built by Nordberg, and world famous for big-volume, low-cost operation, has been combined with Cedarapids mobility and quality construction to give you a portable plant with the high-profit features of a permanent installation.

Cedarapids Built by IOWA

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa, U. S. A.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 246

smaller counterparts.

Many specifications are archaic on this point and need revision. They call for a roller for each 150 cubic yards of fill per hour hauled in. The ability of the latest modern rollers to handle three times that amount passes unnoticed. So does the tendency of too many rollers to congest a fill dangerously, interfering with production. (See the accompanying tabulation of results covering several important western earth projects working on several types of soil.)

In the final analysis, cost factors and results determine the selection of rollers. There are many excellent ones on the market. Only an intelligent appraisal of the work to be done will show conclusively which machine is the better buy. Obviously a roller incapable of delivering results isn't a wise investment at any price.

For a really high-type compaction job, rolling equipment needs real weight. It should be adaptable to a wide range of tractors. If pneumatic, its wheels should deliver the same constant load pressure if the ground is uneven. It should have full-oscillating weight boxes, so there is no bridging or shifting of the load. Weight boxes and tire pressures should offer the utmost flexibility. Standard 4-section units should be built so they can quickly be converted to 3, 5, or 6-unit rollers in a minimum of time.

The unit should be able to compact 12-inch lifts with the same ease 6-inch lifts formerly were compacted, preferably in from 4 to 6 passes, and at somewhat greater speed than has been possible before. The ever-increasing density and CBR requirements on 1955 model fills make it necessary to use every compaction trick possible, along with the finest of modern processing and rolling equipment, to get a good job swiftly and at a profit.

(This is the first of three articles on compaction. The second will appear next month.)

Simplified financing as aid to equipment sales

■ Practical and effective methods of expanding sales and rentals of construction and materials-handling equipment are described in a booklet from Walter E. Heller & Co., 105 W. Adams St., Chicago 90, Ill.

The booklet reviews various ways to use term-selling and leasing to increase volume of business, and methods of financing the resulting sales so as to eliminate the necessity of carrying and collecting long-term notes or rental agreements.

Items discussed include the question of financing credits, collections, and terms of sale.

Various methods are outlined by which an industrial sales and financing plan can be adapted to the needs of a specific seller and his customers from several basic patterns offered.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 64.

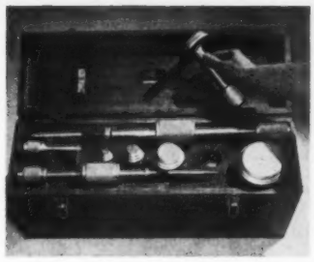
For more facts, circle No. 247→

Oil seal puller set comes in handy case

■ An oil seal-puller set recommended for use in contractors' repair shops is offered by Patton Mfg. Co. The puller set removes all sizes of oil seals from ⅜ to 4½-inch, and additional units for special sizes are available on order.

Oil seals are removed by attaching the proper-size expanding head to the hammer, then inserting the expanding head into the oil-seal opening. Once the hammer is screwed into the expanding head and the head snug in the oil seal, a few taps of the hammer will remove the oil seal without damage to the seal or surrounding material.

The Patton puller set consists of



two hammers and six expanding heads which may be purchased separately according to sizes needed, or as a complete set in a sturdy tool box.

For further information write to Patton Mfg. Co., 1802 West Pleasant St., Springfield, Ohio, or use the Request Card that is bound in at page 18. Circle No. 3.

Details on crawler tractor

■ Literature providing technical and operating details on its new HD-16 crawler tractor is now available from the Allis-Chalmers Mfg. Co., Tractor Group, construction machinery division, Milwaukee, Wis.

The new brochure includes a pictorial review of the design, engineering, and operating advancements which combine to make the HD-16 outstanding in its weight and horsepower classification. Also included are specifications and information on features designed for the comfort of the operator. Matched attachments and accessories are covered as well.

To obtain Form MS-662 write to the company, or use the Request Card at page 18. Circle No. 44.

BIG STEEL GIRDER OVER THE SIDE is set in place using a 55-foot boom with the Tarlton Company's American Truck Crane. The operator experienced no difficulty in booming way out while lowering steel into the hospital's basement. American's power-controlled boom lowering assures fast, yet safe operation.



SETS STEEL, POURS CONCRETE, CLAMS ROCK 65 FEET OUT

American Truck Crane Shows 'Em Versatility in Missouri

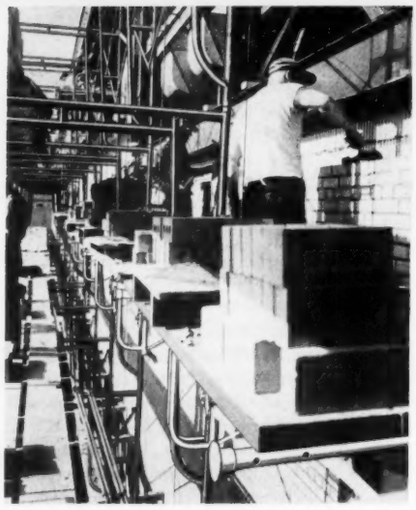
The American 300 Series 25-ton Truck Crane recently purchased by the G. L. Tarlton Contracting Company of St. Louis has proved itself a master in many departments. On the building-expansion project for St. Louis' Jewish Hospital, the powerful American Crane clamshelled pier holes, set steel and poured concrete with an efficiency and ease that pleased its experienced operator. For instance, while clamming with a 75-foot boom, the American Truck Crane removed rocks and dirt from pier holes 65 feet out. With a 55-foot boom, it easily set 4½-ton transformers into the basement over the side of the rig. Like leading contractors across the country, the Tarlton Company has found that American's versatility, power and dependable performance help keep work flowing smoothly on their projects.



"A REAL ALL-AMERICAN," says Tennyson Fuller of the American Truck Crane. An operator with the Tarlton Company for 17 years, Tennyson says the American is by far the easiest and smoothest operating machine he has ever used. "American's controls are within easy reach, too," he says. Some machines get you all tired out just reaching for the controls."

When you buy American, you get the advantages offered by over three-quarters of a century of engineering and on-the-job experience around the world. For detailed information on American Crawler and Truck Cranes, see your American Distributor, or write American Hoist & Derrick Co., St. Paul 1, Minn.

700-9-35



Mobil-Brackets mounted on Safway scaffold end frames raise a working platform and a material platform to any height to which the scaffold can be erected. Minimizing fatigue, the adjustable platforms increase productivity and improve the quality of work.

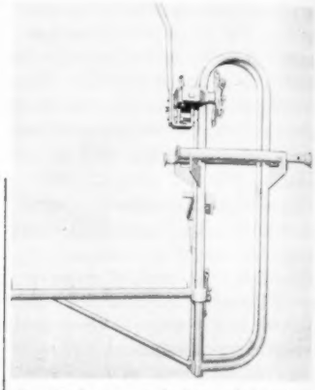
Mason's platform climbs up frame scaffolding

■ A new mason's scaffold that can be raised as courses of brick, block, or stone are laid is announced by Safway Steel Products, Inc., 6234 W. State St., Milwaukee 13, Wis. The new Mobil-Brackets scaffolding equipment makes it possible to perform all masonry work at the most efficient height and keeps materials available at waist level.

Safway Mobil-Brackets carry a 26-inch working platform and a waist-level material platform, adjustable from 16 to 24 inches. The brackets are mounted on and suspended from a tubular-steel frame scaffold. Mobil-Brackets can be used at any height to which steel scaffold can be set with platforms of any required length.

On the job, the scaffold is set up about 30 inches from the wall to be erected. Each bracket is secured to a vertical leg of a scaffold frame by two "star wheels" and suspended on an 18-foot steel cable attached to the top of the scaffolding.

Scaffold frames of the open-end-frame type are recommended for this application. A wheeling platform can then be provided to permit free movement of men and materials along the full length of the wall. With this type of scaffold, a single tender or laborer can keep several masons stocked with plenty of material and fresh mortar.



Detail drawing of the Mobil-Bracket shows "star wheels" that hold the device to the leg of the scaffold frame; also bracket arms that support a working platform and a material platform.

The complete Mobil-Bracket assembly with working and material platforms is raised by operating the handle of the ratchet-type winch on each bracket. A heavy safety latch permits the Mobil-Bracket to rise, but locks rigidly to prevent descent unless held out of engagement manually. To lower the platforms, the ratchet pawl is reversed and the hand lever is operated in the normal direction while holding the latch disengaged.

Mobil-Brackets weigh only 65 pounds, and are easily handled by one man. Fabricated from high-tensile steel tubing, they have a normal loading capacity of 1,000 pounds per bracket, with a safety factor of four.

For further information write to the company, or use the Request Card at page 18. Circle No. 9.

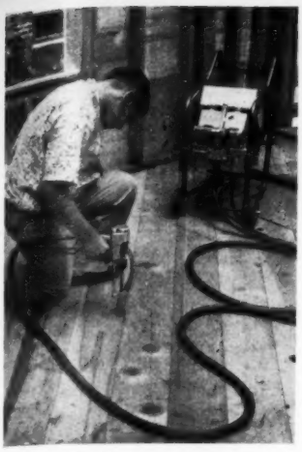
American Hoist to absorb American Steel Dredge

Arrangements are being made by the American Hoist & Derrick Co., St. Paul, Minn., to take over the ownership, operation, and facilities of American Steel Dredge Co., Inc., Fort Wayne, Ind. Under the proposed plan, stockholders of American Steel Dredge will become stockholders of American Hoist, and American Steel Dredge will operate as a division of American Hoist.

Present lines of equipment will continue to be manufactured by American Steel Dredge.



For more facts, use Reader-Reply Card opposite page 18 and circle No. 248



The Nail-A-Matic pneumatic nail driver handles up to 16-penny-size nails.

Air-powered nail driver has automatic feeder

■ A new automatically fed nail driver which the manufacturer claims will drive up to 50 nails per minute is announced by Matrix Engineering Corp., 3016 E. Lake St., Minneapolis 6, Minn. The air-operated unit is available in three sizes to handle nails of 2-penny up to 16-penny size.

The Nail-A-Matic uses a lightweight pneumatic hammer ranging in weight from 4 pounds 15 ounces for the Model 2-5A to 7 pounds 1 ounce for the Model 6-16A. Nails are fed to the hammer through a flexible tube from an 8-pound-capacity hopper on the rubber-tire feeder unit. Air requirements are 14 cfm at 90 psi, furnished by a 3-hp two-stage compressor.

The hammer may be operated with one hand, and permits driving nails flush, countersunk, or partly extended. Quick cam-conversion of the feeder from one nail size to another is possible in a matter of seconds, according to the manufacturer.

For further information write to the company, or use the Request Card at page 18. Circle No. 85.

Portable plants for crushing and screening

■ Portable plants for primary and secondary crushing and screening of aggregate are described in a new catalog from Diamond Iron Works Division, Goodman Mfg. Co., Halsted St. and 48th Place, Chicago 9, Ill.

The Diamond Rotor-Lift plants shown are designed to be moved quickly from one location to another by highway transport. They are built in five types with capacities from 30 to 225 cubic yards per hour.

The literature describes the features of the plants' jaw crushers, roll crushers, vibrating screens, undercreen hoppers, feed conveyors, under-crusher conveyors, rotor lifts, and feed hoppers.

General features of the plants' design include a straight-through run of material and economical recirculation of material for secondary crushing.

To obtain Catalog D 104 write to the company, or use the Request Card at page 18. Circle No. 17.

Spray-type lubricant

■ A leaflet on a lubricant that is marketed in an easy-to-handle spray can is available from Pressure Products Co., P. O. Box 342, West Chester, Pa. Applied as a high-pressure spray, Spray-Lube is convenient and clean to use, and reaches hard-to-get-at spots often neglected. Having a high melting point, the lubricant will not run off under 200 degrees F.

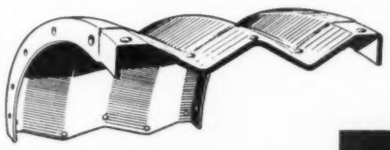
The lubricant may be used on such diverse equipment as cranes and hoists, winches, concrete-mixer drives and pump drives. One can of Spray-Lube is said to be equivalent to 10 pounds of bulk grease.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 74.

"This new boss is a pushover! He doesn't even stay around to see if we're working!"



Two-Man Crew Installs ARMCO Liner Plates



The ease of tunneling with Armco Liner Plates was demonstrated when the city of Edmonton, Canada, installed a structure 10,000 feet long in diameters ranging from 68 to 98 inches.

To contractors, the interesting factor on this job is that crews of just *two men* worked various headings on each shift. These men not only excavated and removed the material, but also installed the Armco Liner Plates. And in spite of the fact the crews had no previous experience with this type of construction, the Edmonton construction engineer said the city got "a good, economical job."

More Contractor Advantages

This case history demonstrates that a large crew is not necessary for the installation of Armco Liner Plates. And previous experience is not required for efficient assembly.

Also, with Armco Liner Plates you can reduce the amount of metal to buy and handle without sacrificing strength. This is because Armco Plates, on a pound-for-pound basis, are the strongest made!

Structures formed from Armco Plates can be round, elliptical, or almost any curvature of arch. They are used for sewers, conduits, service tunnels, underpasses, shafts, caissons, aggregate tunnels, storage bins and for lining failing structures. Armco Plates are supplied for structures having diameters of 4 feet and larger, in 2-inch increments. They are available in material thicknesses from 14 through 3 gage. For more details, write us. Armco Drainage & Metal Products, Inc., 5775 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

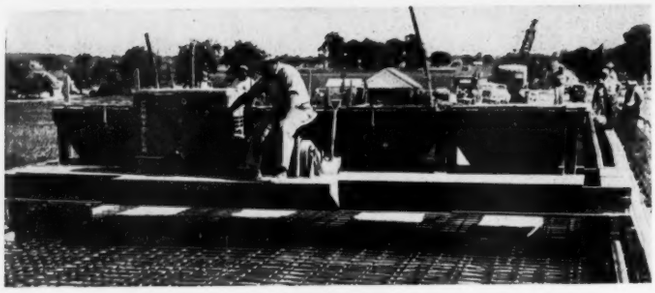


Two-man crew works face of Edmonton tunnel. One operates clay spade; other removes excavated material. Both install the Armco Liner Plates.

Armco Liner Plates

ARMCO®

For more facts, use Reader-Reply Card opposite page 18 and circle No. 249



Designed to speed bridge construction, the new Penn conveyor-car carries and places up to 80 cubic yards of concrete per hour. The model illustrated ranges in length from 23 to 29 feet.

Concreting machine speeds bridge paving

■ A new type of concrete equipment is designed to convey and deposit concrete on bridges for subsequent spreading and finishing. Handling up to 80 cubic yards of concrete per hour, the new equipment is reported to make it possible for work to proceed four times as fast as with the customary hand-cart method. In a test reported, a Penn conveyor-car placed concrete for a 300-foot-long bridge in half a day. The machine is a product of Penn Iron Works, Inc., Reading, Pa.

Capacity of the conveyor-car is from five or six cubic yards. This amount is carried in four separate hoppers. The machine weighs five tons assembled, motor included. It is self propelled, has an 8-foot-wide frame, and runs on the same track as that used by a standard cement-finishing machine. The length of the conveyor-car can be varied with the width of any concrete strip, and adjustments for length can be made in 6-inch increments.

With the addition of a vibratory screed the conveyor-car can be used for finishing. The entire unit can be moved by truck trailer and set on the tracks with a mobile crane.

For further information write to the company, or use the Request Card at page 18. Circle No. 23.

Sturdy hydraulic hose is wire-reinforced

■ A new high-pressure hose designed specifically for hydraulic equipment is being placed on the market by Industrial Products Division, Goodyear Tire & Rubber Co., Akron 16, Ohio.

Called Flexsteel hydraulic control hose, the new product is wire-reinforced and is available in sizes from 3/16 inch to 2 inches inside diameter. Depending on size, the hose handles pressures ranging up to 5,500 psi.

Thoroughly field tested, Flexsteel hydraulic control hose is constructed to meet military, Society of Automotive Engineers, and Rubber Manufacturers Association specifications.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 15.

Line of lifting blocks

■ A complete line of blocks, sheaves, shackles, hooks, and fittings for use in construction is described in a loose-leaf catalog available from Madesco Tackle Block Co., Easton, Pa. The booklet contains 68 pages of illustrations, tables of dimensions, and descriptive text.

Among units described are the Autolub and Speedload high-speed, heavy-duty, all-steel blocks, available in capacities to handle wire rope ranging from ⅝-inch to 1¼-inch diameter; weighted multi-sheave blocks for heavy-lift derricks; snatch blocks; shackles; and other equipment.

A new 5-ton portable snatch block recommended for a variety of uses is described in an accompanying leaflet.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 16.

Two-way mobile radio

■ Its line of two-way mobile radio equipment is pictured and described in a folder available from Bendix Radio, Division of Bendix Aviation Corp., 2120 N. Charles St., Baltimore 4, Md. Both base and portable units are illustrated.

The Bendix Command-Air series, available in systems employing from one to hundreds of mobile units, operates on 25–50 or 152–174 megacycle bands. Either single or dual-channel two-way conversations are possible, depending on the model.

Models with transmitter RF outputs ranging from 2½ to 60 watts are available. Features claimed by the company include easy installation, operation, and servicing.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 197.



Most Modern Design!
Most Modern Power!

Get both in new Chevrolet Task-Force trucks. Modern styling that actually works for you! Modern power in the shortest stroke V8's* in any leading truck!

Styling that's designed to make money for you—It's a fact. The ultra-modern, Powermatic design of a new Chevrolet Task-Force truck calls attention to your business, favorably impresses customers and prospective customers! That's why on looks alone a Task-Force truck can make money for you. And it's *functional* styling. Panoramic windshield, new High-Level ventilation, concealed Safety Steps—these are styling features that double in brass to make the driver's job less of a chore. With safety and comfort increased, efficiency goes up. Tight schedules are easier to maintain and you keep the profits coming in on time.

V8 power—unmatched for efficiency!—Chevrolet brings you the industry's most advanced short-stroke V8 engines! The compact, super-efficient design of these great V8's reduces friction and wear . . . delivers a higher output per pound of engine weight. You save on upkeep and operating costs! And with a modern 12-volt electrical system, you get double the voltage for quicker starting plus a greater reserve of electrical power. *With two power-packed V8's and five gas-saving 6's—it's the greatest engine choice in Chevrolet truck history!* See your Chevrolet dealer for details. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**V8 standard in the new L.C.F. models, an extra-cost option in all others except Forward-Control models.*

NEW CHEVROLET
CHEVROLET **Task-Force TRUCKS**

For more facts, use Reader-Reply Card opposite page 18 and circle No. 250



Protection against battery failure due to electrical shorts or grounds is provided by the Auto-Gard battery disconnect switch.

Safety disconnect switch protects vehicle battery

■ An improved safety battery disconnect switch said to provide positive protection against battery failure due to electrical shorts or grounds, and to minimize the possibility of electrical fires when the vehicle is idle, is announced by Jayco Sales, 500 Fifth Ave., New York 36, N. Y. Recommended for installation on construction machinery which is exposed to the elements, the Auto-Gard disconnect switch has been approved by the Underwriters' Laboratories for either 6 or 12-volt systems, and is rated 250 amp intermittent (starting) duty and 40 amp continuous duty at 6 volts.

The switch is typically installed between the starter and the battery, but it also may be installed on the ground side of the battery. Five feet of choke-type cable permit operation of the switch from the dashboard or any other convenient location. An 18-inch length of battery cable, with lugs, is supplied with the switch to facilitate installation.

Contacts are of the plunger type with unique wiping action which insures a clean contact under all conditions. The switch is housed in a rugged Bakelite case which completely shields the contacts from dust and moisture. There is no measurable voltage drop across the Auto-Gard, and it is not affected by vibration, heat, or cold.

For further information write to the company, or use the Request Card at page 18. Circle No. 12.

Kenco pumps acquired by American Crucible

The American Crucible Products Co., Lorain, Ohio, manufacturer of bronze bearings and wearing parts, has acquired Kenco, Inc., also of Lorain, manufacturer of a complete line of submersible pumps for sump, industrial, and contractor use.

Although American Crucible has been manufacturing Kenco pumps since 1949, the consolidation enables the entire organization to operate under one roof.

Known as the Kenco Pump Division, the firm will carry on all operations from 1305 Oberlin Ave., Lorain, under the direction of Paul Pheiffer.

STUD WELDING SIMPLIFIED the installation of pre-assembled, aluminum window-and-facing units on San Francisco's new Equitable Life Assurance Building. Nelson MG threaded studs, end-welded to steel inserts cast in the concrete poured around the structural spandrels, were used to secure angle clips to which window wall panels were fastened. Freedom of movement for the stud welding operators was provided by a Nelson battery unit used for power. The steel tube at left, nick-named the "pogo stick," was part of a unique grounding arrangement. Studs were located with an accurate template. For further information write to Nelson Stud Welding Division, Gregory Industries, Inc., Lorain, Ohio, or use the Request Card at page 18. Circle No. 57.





THE NEW UNIVERSAL 293Q TWINDUAL PACEMAKER

combines peak production with maximum portability

TOP CAPACITY PRODUCTION

The TwinDual Pacemaker gives you three full stages of reduction for top capacity—a Universal overhead eccentric jaw crusher in the first stage and a TwinDual roll crusher for the second and third stages.

No other single unit plant offers so many big-profit advantages. Big primary jaw crusher accepts large rock—lets you work gravel pits containing big boulders. Exclusive TwinDual two-stage roll crusher gives top capacity secondary crushing. Its high ratio of reduction permits the primary jaw to operate at 50 to 100% wider discharge opening. This results in greater capacity—less jaw wear. Larger inclined gyrating screens with full screening area allow 20 to 25% greater output. All operations from apron feeder to delivery conveyor are driven through one single power unit.

For top capacity with three stages of reduction—and a bonus in longer crusher life, lower horsepower requirements and a better quality finished product, choose a Pacemaker. Available in five models for pit or quarry operation. Get complete profit making facts now.

LOW TRAVELING WEIGHT

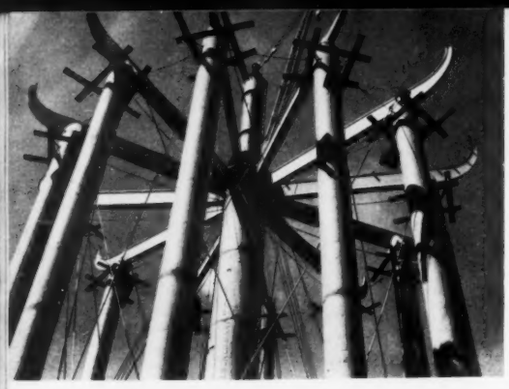
The primary jaw crusher, apron feeder with grizzly by-pass, operator's platform and structural supports are all mounted as a single unit on skids. This primary unit is bolted to the main truck frame. When highway weight limitations must be met, this unit may be quickly skidded to a low bed trailer and transported separately.



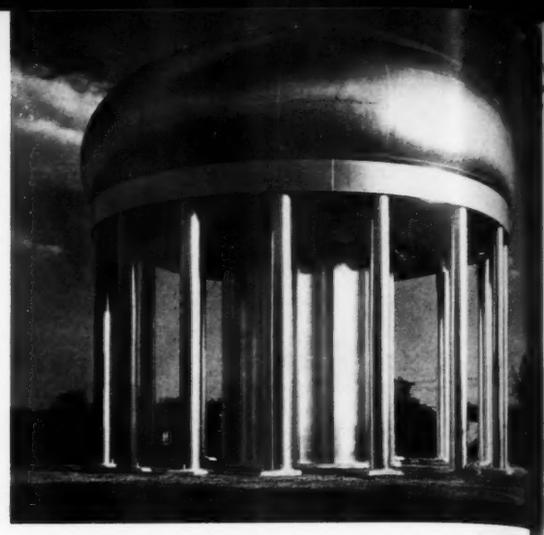
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For more facts, use Reader-Reply Card opposite page 18 and circle No. 251



On-the-job checking of guy lines, cables, or scaffolding makes this job a safe one.
Chicago Bridge & Iron Works Photos



Safety is emphasized in steel tank erection

by **FRANK J. CRANDELL, chief engineer, Liberty Mutual Insurance Co., Boston, Mass.**

Like other heavy construction, the erection of steel tanks is fraught with accident potential. The work usually requires a crew consisting of a foreman, five or six ironworkers, two riveters or welders, and an oiler and operating engineer—all tough men accustomed to working in all kinds of weather on structures 100 to 200 feet in height. In this particular phase of construction, where a gin pole has to be erected for lifting and placing steel, and where steel has to be swung and placed at heights, safety has become a major concern of management, and a sound safety program an important part of production-cost control.

For a number of years, Liberty Mutual has worked in close cooperation with steel-tank erectors, helping the firms to set up a safety program by making a thorough and detailed study of a job's hazards. In this work, we have found that we could localize dangerous areas and classify them into five groups: falls, materials, rigging, ladders and scaffolds, and riveting and bolting. Once these are under surveillance, measures can be taken to eliminate the cause of accidents before any mishaps occur.

Studies reveal cause of falls

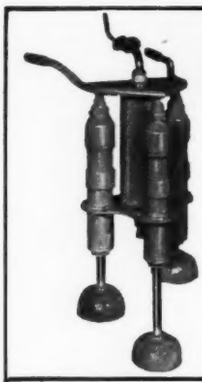
At times, a momentary loss of balance seems to be the only reason for workmen falling from heights. However, our safety program—if it is to be effective—had to study this area of loss. And we turned up some important causes of falls which have helped immeasurably in controlling the steel contractor's accident loss:

1. Dizziness. After our studies showed that some men become more and more susceptible to dizziness at heights as time passes, we set out to determine how this could be tested and controlled. First we found that there was a direct relation between sea and air sickness and dizziness at heights. This made it important to find out if a workman had such symptoms, so we devised two easy tests to find out whether he was, or had become, susceptible to dizziness.

In one test, a man is spinned in a swivel chair for two or three minutes, the chair is stopped, and he is observed as he looks out the corners of his eyes. If his eye continues to jerk rapidly, then he is losing some of his ability to balance properly on high steel.

The second test has a man swung in a playground-type swing to an angle of 30 degrees for three minutes while he holds his hands in his lap and watches them. If at the end of this time he is nauseated, he is less capable of balancing on heights.

2. Antihistamines. The antihistamines used to relieve a cold overactivate the semicircular canals in the labyrinth of the inner ear which control the sense of balance. A workman who takes antihistamine for a



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Standard and Super Models

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. . . Because you get:

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3. One man plus one "TRIPLEX" production equals production of 5 men plus 5 single tampers plus more air.
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6. Air manifolded for correct distribution to all three tampers.
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GUNDERSON-TAYLOR MACHINERY CO. CE-10-55
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Denver 4, Colo.

Please send "Compaction Handbook" and all information about "TRIPLEX" Backfill Tamper.

Name.....
Title.....
Street.....
City.....
State.....
Firm.....
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City.....
State.....

For more facts, use Reader-Reply Card opposite page 18 and circle No. 252

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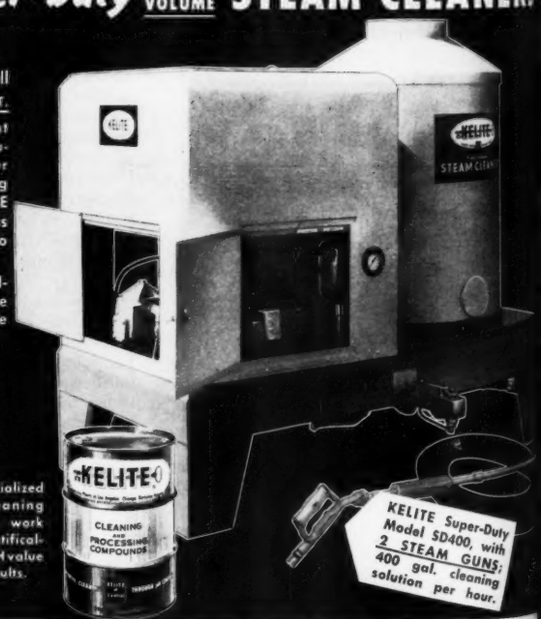
NOW clean heavy equipment FAST...with Super-Duty HIGH VOLUME STEAM CLEANERS

400 gals. per hour volume makes light work of cleaning all heavy-duty equipment...saves you money—time—manpower.

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Work on a structure like this 2-million-gallon water tank in Washington, D. C., can be made safe if the causes of accidents are carefully studied.

cold should be grounded, since it will be unsafe for him to work at heights.

3. Alcohol. Tests show that three hours are required to oxidize each ounce of alcohol. A man with 4 ounces of alcohol in his system by midnight before the start of a working day will thus require 12 hours to get rid of it. This means that the workman will be affected by the alcohol until noon. A foreman seeing that this man's reactions are slow should keep him on the ground until noon.

4. Vibration. A movement only 1/5 the thickness of a piece of paper can be felt through a person's feet. If a movement becomes big enough to have the amplitude equal to the thickness of a piece of paper, it is severe enough to cause a loss of balance. This is particularly important in steel-tank erection when, to save time, only one erection bolt is used to make a temporary connection. Such a connection permits the beam to turn when it is walked on, setting up a vibration large enough to cause a man to fall.

5. Wind and rain. Wind of only 18 to 20 mph can cause a man walking a narrow strut to lose his balance as the wind changes force. Rain makes steel slippery, and the thin rim of frost often found on the top flange of beams on a cold morning is extremely treacherous.



Erection crews working on a steel tank balance high above ground. In work like this, where a slip might prove fatal, they can be alerted to possible construction hazards.

Checking materials for strength

Accidents in all types of construction are often caused when the materials fail. This seems to be especially true in tank erection, where so much depends on the performance of a guy line, hoist cable, or scaffolding rope. On-the-job checking of these items can lessen accident potential.

1. Wire rope. Tests of wire rope showed that broken wires, wear on outside wires, and corrosion, were most reliable symptoms of failing strength. If the most worn section of the rope is inspected and five or more broken wires are found in one rope lay, then the wire rope needs to be replaced. Fatigue is usually the cause of wire ropes breaking where the cable passes over a sheave, and improper lubrication is the cause of breaks distributed about equally along the cable.

2. Wear on outside wires. Shiny worn spots indicate a wear which decreases the total cross section and hence the strength of the cable. These spots can be measured, and if their length exceeds one-third of the length of the exposed wire, the cable is unsafe.

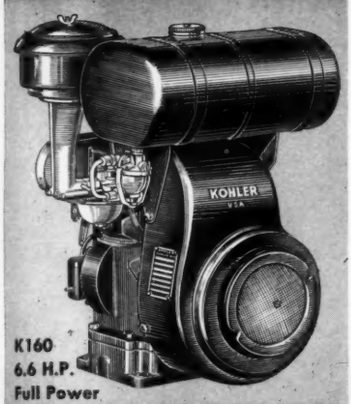
3. Corrosion. Serious corrosion due to infrequent or improper lubrication is usually indicated by black spots where the wire is pitted, rather than by bright orange rust. Pitted rope is unsafe and should be discarded at once.

4. Fiber rope. This rope gradually deteriorates, and when it is more than two years old it is no longer safe for any hoisting work. It can be checked for soundness in a number of ways. One method is to open up the rope by untwisting the strands, trying not to kink the strands. The interior of the rope should be bright and new looking. Broken yarns or an accumulation of a powder-like sawdust indicate excessive internal wear. If a rope has been overloaded, the interior yarns which have failed first will be easy to pull out. Excessive oil on the outside of a new rope is also a good indication that it has been overloaded.

5. Cast fittings, winch drums, and sheaves. Winch drums usually fail at the junction of the drum and flange because of overloading or because the cable has been wedged against the flange, causing the junction to crack. Welds on cast fittings, and particularly on cast iron, are unsatisfactory because they set up high internal tensile stresses.

Sheave sizes should be carefully noted. Groove diameters which are too large for cables do not provide proper support, and groove diameters which are too small tend to wedge and distort the cable.

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Full Power

A Quality Engine for Quality Equipment

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K660.....12 to 26 H.P.

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PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

For more facts, use Reader-Reply Card opposite page 18 and circle No. 253

What they say about KELITE STEAM CLEANERS
(names and addresses on request)

MONROE CENTER (Illinois) implement dealer:
"We have used a Kelite Steam Cleaner for almost a year in our tractor and farm implement repair shop. We are very well satisfied with the work done with this machine. We not only clean all tractors and farm machines when preparing them for painting, but also clean them when getting them ready for overhaul in our shop. We find that this saves time and inconvenience for our mechanics and also impresses the customer with a neat, thorough and complete job. We are convinced that our machine is faster than any steam cleaner we have ever seen work and have never found a cleaning job it would not handle."

BERLIN (Wisconsin) implement dealer:
"Just writing you to let you know what we think of the Kelite Steam Cleaner we purchased from you three years ago. We use the cleaner daily and have had trouble free operation. The Kelite does a good job on radiators as well as tractors, implements and trucks. We have turned out jobs that other steamers in our city couldn't do. It is definitely a profit maker...."

DETROIT (Michigan) trailer company:
"I have supervised shops in the Detroit area for the past six years where Kelite Steam Cleaners have been in use and have found them to be efficient, economical, and easy to handle with little or no maintenance. I have had better success with the above cleaning than any I have tried in my 20 years experience and highly recommend it to anyone contemplating purchase."

DETROIT (Michigan) large autowash dealer:
"The Kelite Steam Cleaner operation is worth $10,000.00 to me."

REDLANDS (California) automobile dealer:
"I wish to take this opportunity to express our appreciation of your service, and the satisfaction of our Kelite steam cleaning equipment and also the attention to our needs given us by your representative."

SAN DIEGO (California) automatic car wash:
"Our downtown wash has been a rough test for steam cleaners. We run it 52 hours a week, and the Kelite is still going like a top after 12 months continuous use. Over 2400 hours at a cost of less than $20.00 for parts."

BRAWLEY (California) implement dealer:
"We wish to advise you that during the past eighteen months your Kelite Steam Cleaner has given satisfactory trouble-free service. We appreciate the help it has afforded in helping us clean tractors and farm equipment before making the necessary major and minor overhauls."

ROCKFORD (Illinois) implement dealer:
"For several years we hired all of our steam cleaning done. We purchased one of your Kelite Steam Cleaners and have been using it for about a year and find that not only is it more convenient to have a machine in our shop saving time transporting machinery, but we have found we can do a better job and use it to clean all machinery to be overhauled in our shop, making it possible to put out a better looking repair job and further giving our trade a first class looking job. We are very well pleased with the operation of this cleaner and would not hesitate recommending this machine to any one who might be in the market for one."

KELITE
is the
STEAM CLEANER
you need

The KELITE will make money for you and save labor | Send for free illustrated literature TODAY.

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6. Scaffold planking. This planking should be unsurfaced, and should measure not less than $1\frac{7}{8} \times 8\frac{3}{4}$ inches in actual cross section. A 2×9 is best suited for this use. Planking should be seasoned wood, free from bow, crook, cup, or twist warping. Twist warp can cause a man to loose his balance, while bow warping often causes a man to stumble. Checks should be not more than $\frac{5}{8}$ inches deep. Splits extending more than 3 inches from the end of a plank should not be permitted.

Gin-pole erection procedure

If the materials used in rigging are sound, much of the accident problem is solved. A number of safe engineering procedures can now be emphasized by the contractor wanting to complete an accident-free job.

1. Gin-pole erection. In erecting the gin pole, it is obvious that the maximum stress in the hoisting cable occurs while the pole is being raised from the ground position. A timber kicker placed against the end of the pole, or tie-back cables, will prevent the foot of the pole from slipping.

As the pole goes up, it reaches a critical point at the vertical position. If the hoisting winch is not stopped immediately, the motion of the pole will be reversed, and gravity will cause it to fall. This requires well-understood and standardized signaling.

2. Handling materials. The sailor's rule, "a hand for yourself and a hand for the ship", can be well applied by men working on high steel, for a number of accidents can be traced to attempts to handle heavy cables with both hands. Tag lines which direct the force of moving loads of iron should be made standard controls.

We know from past experience in every type of construction operation that accidents will occur even when safety seems to be uppermost in the minds of everyone. But we also know that accidents, like all other happenings, have causes, and the purpose of our hazard evaluation is to tackle these causes, to hold a sort of preview of the accident itself, and so make possible its control and elimination.

THE END

Data on shovel line

■ A new 40-page bulletin on its complete line of excavating and material-handling machinery is available from the Marion Power Shovel Co., Cheney Ave., Marion, Ohio. The bulletin features action photos of each basic machine type, as well as condensed specifications.

The booklet covers Marion power shovels, draglines, and cranes—ranging from ¾-cubic-yard capacity to the largest excavating machines manufactured.

To obtain Bulletin 403-C write to the company, or use the Request Card that is bound in at page 18. Circle No. 42.

A new tire is being developed that will wear for 100,000 miles. According to reports, the American motorist will be able to buy it in three or four years—and in colors to match his car!

Portable radial saw

■ A portable electric radial saw that weighs only 169 pounds has been announced by Skil Corp., 5033 Elston Ave., Chicago 30, Ill. The new tool is designed to operate on both ac and dc. This feature is expected to appeal to contractors and others who own small dc generators.

The new Model 649 saw is reported to make every type of cut through all sizes of lumber used in home building and in other light construction work. With the proper blade, the saw also will cut stone, tile, metals, asbestos, and composition materials.

Rated at 1½ horsepower, the saw has a free speed of 5,700 rpm. Depth of cut is $3\frac{1}{8}$ inch; straight cut-off capacity is 18 inches, and rip capacity reaches to the center of a 48-inch panel. Cut-offs to 12 inches can be made up to 45 degrees. The blade diameter is $8\frac{1}{4}$ inches.



This new portable electric radial saw by Skil Corp. is light enough to be carried by 2 men and will operate on either direct or alternating currents.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 38.

Literature on stabilizer for asphalt emulsions

■ Recommendations for the use of a stabilizer for oil-in-water-type slow-break asphalt emulsions where soaps are used as primary emulsifiers are contained in new literature.

Without stabilizers, such emulsions may break when mixed with calcium-bearing substances such as road-paving aggregates. The stabilizer, Indulin, prevents the destabilizing reaction between calcium and soaps. It also facilitates the preparation of slow-break emulsions which pass the standard demulsibility and cement-mixing tests used as measures of stability with calcium-bearing aggregates.

Indulin C, a sodium salt of pine



Dozing and pulling a scraper in rock-like shale, this HD-16 owned by Murray Construction Company, Waverly, Ohio, is working on relocation of Route 73, northwest of Peebles, Ohio. Excavation from a hill is hauled 1200 ft to raise level of highway where it crosses a valley. The tractor is definitely faster than their previous machine, according to Bob Murray, one of the owners, and one of the reasons is the torque converter — it saves shifting, makes it easier on the operator.

HD-16's in action





Preparing new land for homes. A hilly farm near West Bend, Wis., is being graded for a housing development by this HD-16 tractor pulling an Allis-Chalmers 18-yd scraper. Contractor Ed Cechvala had always liked the way his other four Allis-Chalmers tractors performed, so chose the new HD-16 when he needed additional equipment.

Feeding a crusher is another of the many uses for the versatile HD-16. This one is working for Kimmes Construction Co. of Hastings, Minn. With 31,600 lb of weight, 150 net engine hp and torque converter drive, the HD-16 develops up to 60,000 lb of drawbar pull under proper conditions.

wood lignin, is generally the preferred form for use in asphalt emulsions, although a form called Indulin A can also be used. Both are dry free-flowing powders that can be stored indefinitely.

The preferred procedure for using Indulin C is to dissolve it in water together with the emulsifier, sodium hydroxide, and other chemicals. This mixture is then added directly to the asphalt in the emulsifying machine. In addition, the stabilizer may be added as a solution even to a finished emulsion which fails to pass the specific stability test.

To obtain this literature write to the Polychemicals Division, West Virginia Pulp & Paper Co., Charleston A, S. C., or use the Request Card at page 18. Circle No. 26.

All-steel work boat

■ Designed to serve as a work boat, personnel carrier, crew boat, or light tow boat the all-steel Hansen Sea-Truck is 40 feet long, and has a 12-foot beam. Powered by a diesel engine, the Sea-Truck is light enough to be handled in and out of water by a contractor's crane, and can be transported easily by trailer or truck, according to a folder from the manufacturer.

The deck space accommodates up to 20 persons.

To obtain this literature write to Hans Hansen Welding Co., Inc., 318 Washington St., Toledo 4, Ohio, or use the Request Card that is bound in at page 18 of this issue. Circle No. 6.



The Jay portable vibrating earth tamper has a flush shoe which permits tamping next to abutments.



Digging basements and landscaping for a 300-acre, 300-home housing development is the first assignment for this HD-16 owned by R. M. Cantrell & Sons, Annandale, Va. "Best all-around tractor we ever used," said Mr. Cantrell. He finds it boosts output because it is working more of the time than were previous tractors. "Easier to handle, too," added one of the operators, "— makes the job go faster."



Clearing and grubbing on a state highway project in Greenville County, S. C., offers an opportunity to efficiently apply the 131 belt hp and 31,500 lb weight of this HD-16. It is owned by the Bituminous Construction Co. of Whitmire, S. C.

...modern, heavy-duty Allis-Chalmers crawler tractors set the pace on a wide range of jobs



Carving out roads and helping log 30,000,000 bd ft of timber is the job of two HD-16 torque converter tractors owned by Silver Creek Logging Co., Tacoma, Wash. Wet and muddy terrain doesn't stop the HD-16's. "These tractors have lots of power, are very maneuverable and have plenty of guts," says spokesman Tom Murray, Jr.



Building roads and plowing snow in Gunnison County, Colo., will keep this new HD-16 torque converter tractor busy the year around. This mountain road is being cut through adobe clay and slide rock a distance of 3½ miles and is to be completed in five weeks.

Why not check for yourself on the new HD-16's — advanced in design, outstanding in performance. Your Allis-Chalmers dealer can tell you where to see them at work . . . where to get the story firsthand from owners and operators.

CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

For more facts, use Reader-Reply Card opposite page 18 and circle No. 255

Small vibrating tamper has heavy-duty capacity

■ A vibrating earth tamper small enough to be carried in the trunk of an ordinary passenger automobile is announced by the Jay Corp., 168 Hosack St., Columbus, Ohio. The new portable tamper has already proved itself on the job, having been chosen by the contractor to tamp all backfill on the $2,500,000 Sandusky Street Bridge project in Columbus.

According to the manufacturer, the Jay tamper travels 60 to 75 feet per minute while delivering 2,515 100-pound impacts—more pressure per inch than a 10-ton roller. It is a self-contained, self-propelled unit requiring no air compressors, no air hammers, and no lines or hoses. Operated by one man, it is said to outproduce a five-man air-compressor crew.

A Wisconsin 2½-hp air-cooled engine powers the tamper, which operates 8 hours on two gallons of gasoline. A special shock absorber, mounted between the handle and tamping chassis, combines with soft sponge-rubber handle grips to minimize vibration travel to the operator.

The Jay tamper keyseats all materials to a solid foundation in any type of backfill. A flush shoe permits tamping next to abutments. The unit's vibrating principle is reported to eliminate sinking problems on sewer fills and road work.

The tamper permits easy interchanging of 12, 18, and 24-inch tamping shoes. Special form and curbing shoes are optional.

For further information write to Dick Reedy, The Jay Corp., Box 244-Q, Columbus 7, Ohio, or use the Request Card at page 18. Circle No. 5.

Colorado Fuel & Iron appoints H. B. Smith

The Colorado Fuel & Iron Corp., New York, N. Y. has appointed Hubert B. Smith director of product engineering at the Claymont, Del., plant. Mr. Smith will supervise production in all stages, from research and development to quality control.

Mr. Smith was former vice president in charge of research for the Great Lakes Steel Corp.

Production line gives protective enamel coating to a daily average of 5,000 feet of pipeline sections

A highly efficient setup applying protective enamel coating to as much as 6,000 feet of pipe daily was one of the pivotal operations keeping pipeline crews moving swiftly across the Rocky Mountains as they laid the new 54-mile water supply line for Colorado Srings.

The contract for the 28-mgd water-supply artery went to R. H. Fulton, Lubbock, Texas, and the job of giving the pipe sections a protective coat was sublet to Koppers Co., Inc., Pittsburgh, Pa., a firm specializing in the manufacture and application of such coatings. Koppers, in turn, sublet exterior coating work to Tulsa Pipe Coating, Inc., Tulsa, Okla.

The 40-foot pipeline sections, fabricated by Basalt Rock Co., Inc., Napa, Calif., were brought to the yard, located at the halfway point of the job near Hartsel, last summer. Then, when the job of setting up the yard for the enamel application was started, the pipe had to be cleaned thoroughly since it had rusted while in storage during the winter. But once work started rolling with J. V. Whitlock in charge of Koppers Co. work, and L. S. Crittenden in charge of Tulsa Pipe Coating operations, an average of 5,000 feet of pipe was given a protective coating of Koppers 70-B Bitumastic enamel and primer daily by both contractors.

Pipe is prepared

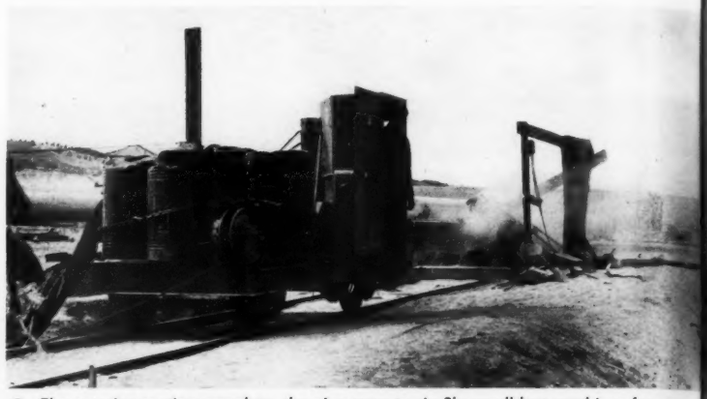
As a pipe moved through the yard, it followed this path from operation to operation:

Pipe is first picked up from the storage pile by an International TD-18 tractor with a Superior sideboom, which sets the bare section on a ready rack. This rack, sloping gently downhill, has room for about 150 pipe joints. The pipe section gradually works its way downgrade

(*Continued on page 64*)



1 The coating process starts as an International TD-18 tractor uses a Superior sideboom to lift pipe from the storage rack.



4 The exterior coating complete, the pipe goes to six Sly sandblast machines for cleaning. Four sandblast nozzles reach through the pipe.

ROCKY MOUNTAIN PI

Trench excavation is carried to 33 feet in places for 31-inch water line running 54 miles to Colorado Springs



1 Gardner-Denver wagon drills, hung from a Cat D7 side boom, drill rock.



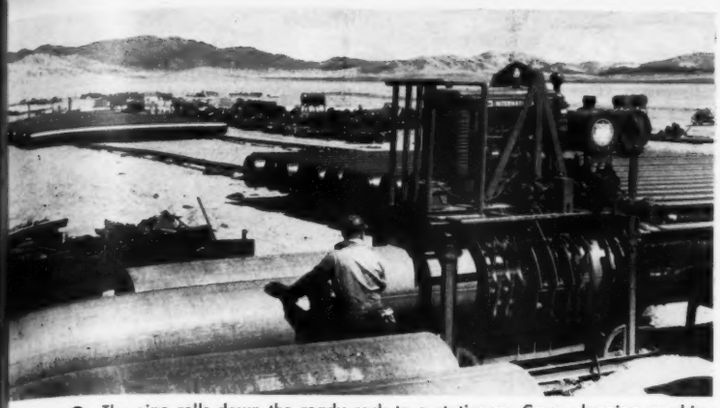
2 Lincoln diesel welders join the pipe together.



4 A Lima Paymaster backhoe and a Northwest crane with clamshell digs holes in the trench to accommodate the Dresser couplings.



5 Two Caterpillar D7's with sidebooms pick up a 120-foot assembled section to lower it into the trench. Three joints make up a completed section.



2 The pipe rolls down the ready rack to a stationary Crose cleaning machine which brushes the exterior of the pipe and applies Koppers enamel prime.



3 A section, coated with enamel and wrapped in protective Fiberglas and kraft paper, has its coating checked by a detector crew.



5 Moving to the priming machine, the pipe is rotated on trunnions while a boom, reaching through the section, sprays on the prime as it retracts.



6 The inner coating is put on by two 20-foot trough-type units, one at each end of the section. Enamel from Littleford kettles is applied to the spinning pipe.

IN PIPELINE



3 The pipe dope gang follows the welders, enameling bare sections left at the joints when the pipe was coated. Fans permit men to work inside the pipe.



6 As soon as a pipe section has been set on the 6-inch granular cushion in the trench, workmen install Dresser couplings 120 feet apart along the line.

Hard rock, water, mud, and high elevations made trenching the most difficult phase of work on the 54 miles of 31-inch pipeline laid in the Rockies to supply another source of domestic water to Colorado Springs, Colo. To establish precise grades for the line, R. H. Fulton, Lubbock, Texas, had to dig the trench 33.8 feet deep in some places. In low areas, the line had to be set on concrete pedestals and covered with a minimum of three feet of dirt backfill.

Fulton's superintendent, Jim McGill, and his crew last year ran into some tough problems laying a pipeline in the marshy area around the head of Lake Superior, but on this job the men ran into problems they had never seen before.

Beginning at the 11,000-foot elevation near Montgomery Dam in the Rocky Mountains, the line drops to a 6,000-foot elevation at Lake George, west of Colorado Springs. Here, because of the difference in elevation, the land will be under 800 psi of working pressure. Other parts of the system include a 30-inch line, laid several years ago, which takes water from Lake George to Catamount Reservoir. Still another line carries water to the city.

The new pipeline, carrying 28 million gallons of water daily, consists of pipe with 37 changes in thickness and strength of walls. The line was constructed by welding three 40-foot joints together, and installing it with a Dresser coupling every 120 feet.

Difficult clearing

McGill and his crews arrived at headquarters office in Lake George late in April and were ready to start right-of-way clearing by May 1. The first part of the line follows the general route of U. S. 24, and clearing work was relatively easy at the start. But a sizable segment of the line had to run through some rough terrain where trees 24 and 26 inches through the butt grow in an extremely rocky



7 Backfill is shoved into the trench by a Caterpillar D7 dozer.

formation, and this required extensive clearing work.

The 30-man clearing crew worked with two Caterpillar D8 tractors, both equipped with Hyster rear-end winches and one having a LeTourneau K-20 rooter. A Caterpillar D7 with an RU-type Carryall was used to knock off high spots of ground and to fill in low places so that trench-excavating equipment could dig most advantageously. Six McCulloch power chain saws were used to drop the trees. Working steadily, crews had right-of-way clearing and trench excavation almost 15 days out in front when pipe-laying crews were ready to start work

Trenching to close tolerance

The toughest part of the trench-excavation work resulted from the need for meeting specifications calling for the bottom of the ditch to be dug to a tolerance of ⅜ inch. In many sections of the high mountain meadow country, crews had to fight through mud and water caused by melting snows. In other places, granite had to be drilled and blasted to meet specifications.

McGill estimates that approximately 30,000 cubic yards of solid rock had to be shot on the job. This material was drilled with four Gardner-Denver wagon drills, sideboom-mounted on Caterpillar D7 tractors and powered by four Gardner-Denver 600 cfm air compressors. Timken rock bits were used for the drilling, and Du Pont 40 per cent granular powder —with some special gelatin where ground water formations were heavy —was set off to break up the granite.

The rock was so tough that some sections of the trench had to be drilled and shot eight times to establish the bottom of the ditch at grade lines. A great deal of secondary shooting was required by the nature of the formation. The granite was not uniform, and very hard granite ledges overlay beds of disintegrate granite so that explosive charges, when they went off, tended to be absorbed by the softer material underneath.

One of the worst formations had sloping layers of metamorphosed granite which was badly twisted, broken, and faulted, and which made drilling a pipeline ditch to even dimension almost impossible. But crews licked the problem by over-drilling, over-shooting, over-excavating, then getting the pipeline in and handling excess backfill.

The most difficult portion of the trench excavation was handled by four Northwest 41 backhoes of 1-yard capacity, two Lima Paymaster ¾-yard backhoes, four Northwest 25 machines with ¾-yard backhoes, and two Northwest 25 clams. These machines worked generally in ditch excavation from 6.5 to 33.8 feet deep, digging the material and casting it temporarily to one side. This was an unusually large spread of backhoe equipment, but it was necessary to meet the ambitious 5,000-foot-per-day schedule which McGill had set up.

Where digging conditions were good and long runs possible, a Buckeye 48 ditcher was put to work. This machine, using H & L digging teeth on its endless chain of buckets, often completed 3,000 linear feet of ditch in a 10-hour period.

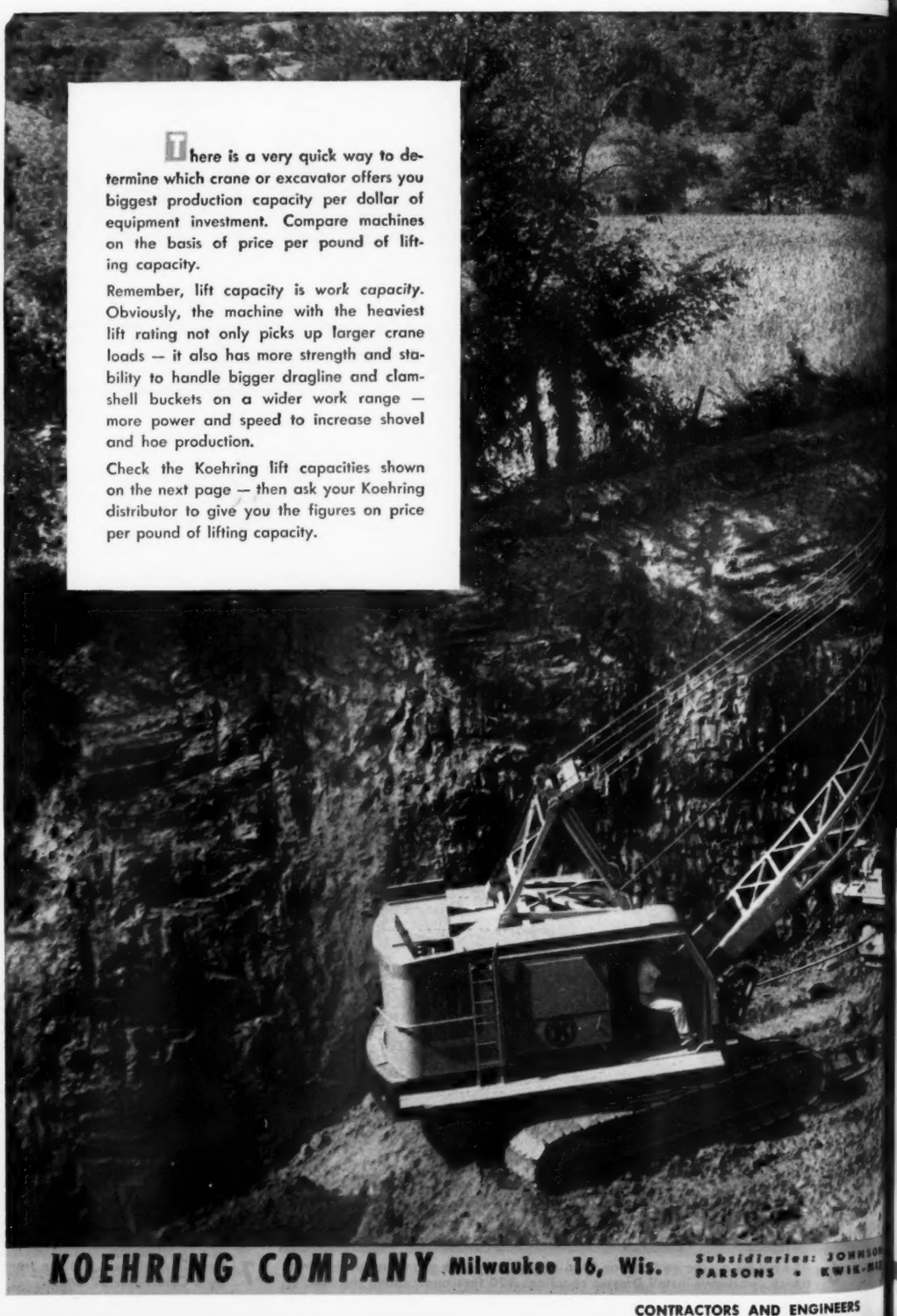
Pipe goes in quickly

The 40-foot pipeline sections were assembled, cleaned, and given a protective coating in a yard near Hartsel. (See accompanying article.) The sections were strung along the job by Fulton's truck fleet of seven Ford F-7 and F-8 trucks, equipped with rubber-covered cradle-type hauling bodies especially designed for pipeline work. Sections were loaded onto the trucks in the yard by a Northwest 25 crane and were unloaded at the site by a Caterpillar D7 with a Trackson sideboom.

The next step in the assembly process was done by a welding crew with 14 Lincoln diesel 300-amp welding machines. The welders were organized so that two bead hands worked in front. Eight line welders followed these men. Two utility welders, on call for special assignment work, used Lincoln's Fleetweld 5 and 85 arc rod to fasten the sections together. The pipe was laid on 4×6 timber skids, with the joints held together by inside line-up clamps until the stringer bead was run. A Caterpillar D7 and sideboom held the joint in place during this operation.

Just behind the welding crew was a dope gang equipped with two Littleford 23-barrel paint kettles, 3 floor-type electric fans, and 3 Kohler 2,000-watt electric light plants for powering the fans. These permitted the men to work inside the pipeline, enameling the bare sections at the joints. Men especially trained in this painstaking and hazardous work, and receiving special wages for the job, used Tampico fiber brushes to daub the 490-degree Koppers 70-B Bitumastic enamel over the narrow section in a circular pattern. The brushing was repeated with longitudinal strokes to assist the hydraulic flow of water over this protective coating.

While this work was being done, the 6 inches of granular padding in the bottom of the ditch was placed. The material, which minimizes pipe damage from sharp rocks, was hauled by five Ford F-6 and F-7 trucks. These were assisted in loading and placing by three Trackson front-end



loaders on D4 and D6 Caterpillar tractors.

Working with this crew were a crawler-mounted Northwest clamshell and a Lima Paymaster ¾-yard backhoe, which were used to dig out a work space or bell holes to accommodate the Dresser couplings. These machines also did the necessary excavation for vent installations, manholes, and blow-off pipes.

When the pipe was ready to be lowered into the trench, two Caterpillar D7 tractors equipped with Trackson sidebooms picked up each 120-foot section and lowered it gently into place.

Installation of the Dresser couplings was a painstaking operation. Each had 32 bolts from 9 to 11½ inches long and ⅝ inch in diameter, which had to be brought snugly against a rubber gasket. The couplings, furnished to the job by Thompson Pipe & Steel Co., Denver, Colo., were slipped onto the pipe while the line was supported by the D7 sidebooms, then set up by Mall electric impact wrenches powered by small Kohler electric light plants. A few hours after their installation, the Dresser couplings were checked with a torque wrench at 95 pounds pressure. Then, because temperature changes might affect the rubber gasket, every joint was rechecked for a third time the following day. After this, a 100-psi air-pressure test was put on the line so that soap inside the pipe could reveal any defect in the joints. If bad joints were found, the pipe was disassembled and reassembled again tightly. When the joints had passed final inspection, they were cleaned, repaired, and painted by a flood-coating of Koppers Bitumastic 70-B enamel.

Backfill, which was left uncompacted, was brought in behind the pipeline outfit by several Caterpillar D7 tractors and dozers and by a Northwest 25 dragline. The entire spread was fast moving and efficient. Though the spread was geared for laying about 5,000 linear feet of pipe per day, it actually exceeded that production rate several times, even under the difficult working conditions.

Personnel

Supervision of the engineering and construction phase for Colorado Springs was done by Ray Nixon, chief engineer for the city, who was assisted by Ray Hagler.

R. H. Fulton foremen, working under superintendent Jim McGill, included "Borger Red" McMenmany, trench excavation; O. C. Awalt, bending; Roy Earnhart, pipe; Whitey Harris, welding; Gus Purdom, paint; and Hank Blackburn, lowering-in. Bill Fidler was in charge of cleanup and miscellaneous concrete work.

THE END

Concrete cylinder molds for compression testing

■ Full-strength specimens meeting all pertinent ASTM requirements are said to be produced by a line of concrete test cylinder molds manufactured by Moline Iron Works, 130 Second St., Moline, Ill.

Made of high-strength heat-treated malleable iron castings with bronze swing volts, the molds consist of body halves, base, and handle. Of rugged construction which allows them to sustain a great deal of rough handling in field use, the molds are nevertheless reported to consistently produce concrete test cylinders which are uniform as to dimensions and strength.

Stock sizes available include the Model A, for obtaining 6 × 12-inch cylinders of concrete containing aggregate not exceeding 2 inches in size, and the Model B, which makes 8 × 16-inch cylinders of concrete containing aggregate exceeding 2 inches. A Model C for making 10 × 20-inch cylinders and a Model X for making 4 × 8-inch cylinders are among sizes produced to order. Molds for making test beams also may be specially ordered.

For further information write to the company, or use the Request Card at page 18. Circle No. 11.

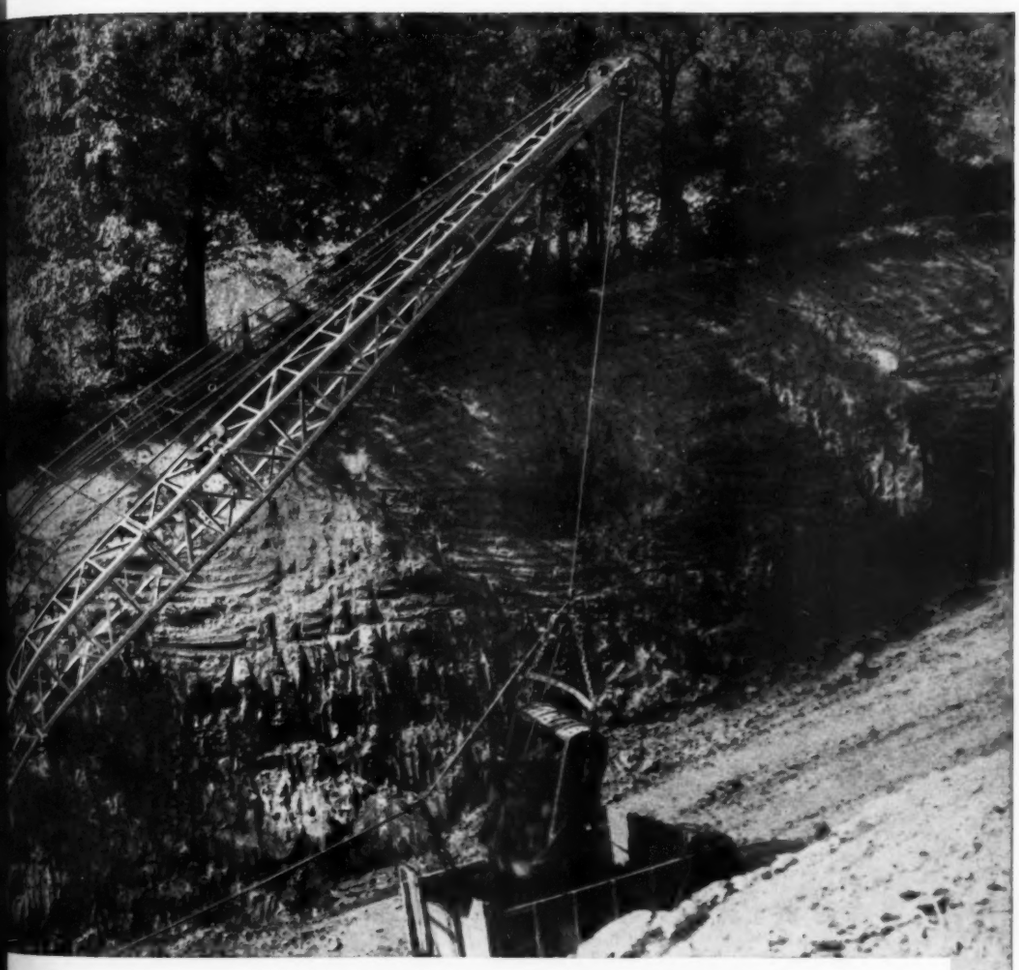
Details on asphalt plants

■ An instructive catalog describing and illustrating the construction and operation of asphalt mixing plants has been published by Koehring-Waterous Ltd., Brantford, Ont. Hot-mix, batch, and portable plants are treated.

Illustrated by more than 40 photographs, charts, drawings, and diagrams, the bulletin discusses efficient layouts for typical portable or permanent plant setups, and provides a complete description of the component parts of such plants. Operational and control features also are discussed. A large cutaway drawing of a complete plant details the flow of materials through the various parts.

Features claimed for Koehring-Waterous plants—including accurate material proportioning, economical heating and drying, accurate sizing and weighing of batches, thorough mixing, and control flexibility—are described in a section devoted to products manufactured by the Canadian firm. A guide table for hot-mix asphalt construction also is included.

To obtain copies of this bulletin write to the company, or use the Request Card that is bound in at page 18. Circle No. 37.



Check price per pound of lifting capacity

KOEHRING MODEL	SIZE DIPPER	KOEHRING LIFT CAPACITIES (Crawler ratings based on 75% of tipping load. Rubber-tired machines — 85% of tipping load)		PRICE PER POUND OF LIFT CAPACITY*
205 CRAWLER	½-Yd.	20,000 lbs.	30-foot boom at 10-ft. radius	?
205 ON RUBBER	½-Yd.	30,000 lbs.	25-foot boom at 12-ft. radius	?
304 CRAWLER	¾-Yd.	27,800 lbs.	35-foot boom at 12-ft. radius	?
304 ON RUBBER	¾-Yd.	50,000 lbs.	30-foot boom at 10-ft. radius	?
405 CRAWLER	1-Yd.	40,000 lbs.	40-foot boom at 12-ft. radius	?
605 CRAWLER	1½-Yds.	72,300 lbs.	50-foot boom at 12-ft. radius	?
1005 CRAWLER	2½-Yds.	159,000 lbs.	50-foot boom at 12-ft. radius	?

*Figures available on request—ask your Koehring distributor for them.

KOEHRING HEAVY DUTY

For more facts, use Reader-Reply Card opposite page 18 and circle No. 256



A finished section is taken from the loading rack by a Northwest truck-crane and swung to a Ford F-7 truck for delivery to the pipeline crews.

(*Continued from page 60*)

until it rolls to the cleaning-machine setup.

This consists of an ordinary M. J. Crose pipeline cleaner set in a stationary position with a set of feed rollers directly behind it. As the exterior wall of the pipe is thoroughly brushed by the heavy-duty Crose cleaning machine, a coat of Koppers Bitumastic enamel prime is applied. When the pipe section comes out of this machine, it moves off to the prime storage rack which holds about 100 joints of pipe. Then, as the pipe starts to roll down this priming rack, the ends of the pipe section are cleaned by hand.

Exterior coating

The primed pipe section now moves off the end of the priming rack into an M. J. Crose wrapping machine which gives the pipe joint a heavy exterior coat of Koppers 70-B Bitumastic enamel while it pulls two protective wrappings tight against the black material. The wrappings include a coat of spun Fiberglas, embedded in the enamel, and an exterior wrapping of kraft paper, which is designed to protect the paint during the handling process. The Crose wrapping machine then rolls the pipe section onto an automatic kick-off rack, after which it passes to a cooling and inspection rack.

On the cooling rack, the exterior coating is checked carefully by a testing machine manufactured by Pipeline Inspections Co., Inc. 2104 Wyandotte St., Kansas City, Mo. If the detector shows any flaws in the coating, the unprotected places are repaired before the pipe is allowed to move on. The exterior is now finished, and the pipe joint goes down another rack toward the part of the yard occupied by Koppers Co., Inc., for the inside coating.

Interior coat

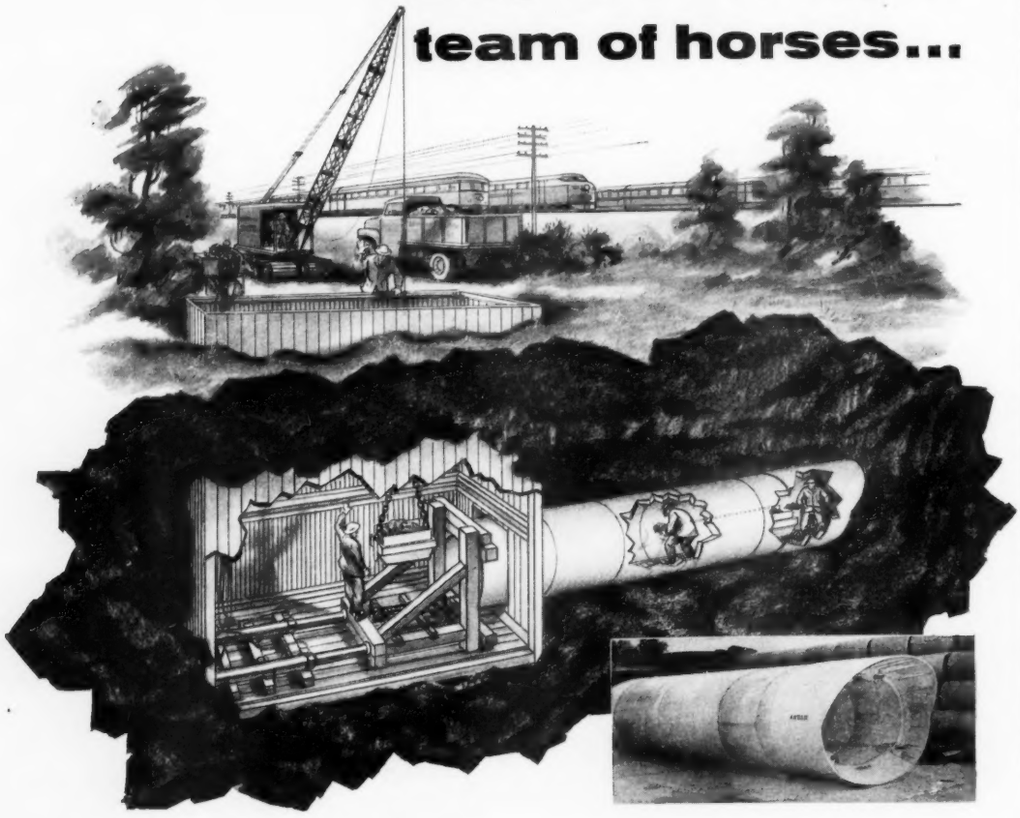
Coating the inside of the pipe is a highly mechanized operation. The inside of each section is first sandblasted so that all rust, mill scale, and dirt is removed down to bare metal. A battery of six Sly sandblast pots, arranged in line, and six Bullard air purifiers handle this work. Four of the Sly pots are in use constantly and two are on hand for standby service. Three Gardner-Denver 600-cfm air compressors supply air for this work.

The entire sandblasting operation is controlled by one operator who works from the cab of a small special-purpose machine mounted on a narrow-gage railroad track. This machine consists of a 40-foot boom capable of reaching through a pipe joint, four sandblast nozzles, and an electric-motor drive for moving the machine toward and away from the pipe. In the cab are push-button controls for applying air to the sandblast pots, for moving the sandblast machine in and out of the pipe, and for starting the U. S. Varidrive electric motor which, through a trunnion setup, rotates the pipe at about 800 rpm during the sandblasting process.

An air supply on the boom of the machine operates in such a way that air is blown back to the end of the pipe nearest the machine, where it drops through a small opening into a temporary sump. A Whiteman Power Buggy recovers most of this sand and wheels it back to the platform above the Sly sandblast pots for re-use. The pipe section, its interior thoroughly clean, now moves down the rack toward a priming machine.

This pipe-spinning setup is almost identical to the one at the sandblast pit. It consists of two sets of trun-

Easy as driving a team of horses...



AMRAM JACKING CONTROLS

Steer to Maintain Grade and Alignment

The unusual maneuverability of the pipe head in the AMRAM jacking system is made possible by the use of truss rods that may be tightened or loosened to alter the forward course. Where necessary, gasket-rings between the leading sections of pipe will provide greater resiliency and flexibility for a wider range of control.

AMRAM Jacking Controls are designed for use with Lo-Hed, Inner Circle and round, reinforced concrete pipe in sizes above 30" internal diameter. Write today for complete information.

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B. C. Concrete Company, Ltd. — Concrete Products Co. of America — Lewistown Pipe Company
Concrete Conduit Company — Lamar Pipe and Tile Company — Universal Concrete Pipe Co.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 257

nions for rotating the pipe. Mounted in depressed sections at each end of the pipe rack, the trunnions are driven at a speed of about 800 rpm by two U. S. Varidrive motors.

The priming machine, also quite similar to the sandblasting rig, consists of a cab with operator-control buttons, a boom long enough to reach through one of the pipe sections, and a spray head which delivers the coal-tar prime as the pipe is rotated. On the boom of this machine is a straight air jet which operates while the machine's snout moves through the pipe for the start of the priming operation. The air jet removes loose bits of sand left inside the pipe from the sandblasting operation so that when priming starts, the inside of the pipe is perfectly clean. The enamel prime is put on as the priming machine is retracted and the pipe section is kept spinning. When a section has been primed, the hydraulic rams in the pit raise the section to rack level again, and the pipe rolls down the rack toward the hot-enameling crew.

This crew spins a tough durable coat of Koppers 70-B Bitumastic enamel on the pipe at a temperature of about 490 degrees F. Two Littleford hot-dope kettles, mounted on either side of the rack, heat the Koppers enamel. This material, arriving on the job in 50-gallon steel drums, has to be chopped out of the containers in chunks and loaded to the Littleford kettles for heating to application temperatures. The kettles are arranged sufficiently close to the enamel-application machines so that the enamel can be drained directly from the kettles into the 20-foot trough-type receptacles. These are located on two dolly-mounted rigs which go into the pipe to place the enamel.

The enamel goes onto the pipe rapidly enough so that the troughs do not have to be cleaned between applications. Three joints can be handled in one "scraping". When a pipe section is in position, the necessary amount of enamel is drained from the Littleford kettles at each side of the rack into the troughs. Men immediately shove the dolly-mounted boom into the pipe until the ends of each trough meet at the center of the section.

The pipe is already spinning at about 1,250 rpm in exactly the same type of trunnion and U. S. Varidrive motor setup used at the sandblast and priming locations. Workmen at each of the dolly-mounted machines then pull levers to dump the hot dope from the trough to the pipe. The pipe's high speed of rotation tends to pull the material evenly over the inner surface, leaving it with a mirror-like smoothness. As soon as the enamel is dumped, the little rigs are quickly retracted with the aid of Ingersoll-Rand air tuggers outside. An electric motor-driven fan is turned on to cool the enamel and blow the yellowish-black acrid smoke out of the pipe.

Final touch

With the exception of six inches at each end, the interior of the pipe is smooth. Enamel is not put onto the inside ends until the pipe is delivered to the job, assembled, and lowered into place. This operation waits until the section is laid out onto a rack and loaded by a Northwest 25 truck-crane to one of the Ford F-7 trucks stringing the sections along the ditch.

The final 6 inches inside either end of the pipe is coated by specially trained men with Tampico fiber brushes. Protected by a blast of fan-driven air, these men crawl inside the pipe and apply the hot enamel around each joint, first with a circular motion, then with a longitudinal swipe. This gives a single effect to the coating and makes the enamel take on a longitudinal pattern which will assist the hydraulic efficiency of the line.

THE END

Plastic safety hat is strong and comfortable

■ A construction workers' safety hat made by General Textile Mills, 450 Seventh Ave., New York 1, N. Y., is reported to be exceptionally comfortable.

The new hat is of plastic, strong enough to exceed all government standards for safety and protection and affording excellent insulation against heat and sun. It can withstand more than 10,000 volts of electricity.

The extra comfort is achieved in the Gentex hat through a lightweight headband which cannot wrinkle and which is easily adjustable to size. The headband is part of a snap-in sling. The hat's suspension system is removable and washable.



Total weight of the hat is 14½ ounces. It is available both as a hat and as a cap in various colors.

For further information write to the company, or use the Request Card at page 18. Circle No. 45.

Announcing

New Ford Trucks for '56



New capacities carry more load; new power moves it faster.

Now! Most horsepower per dollar!

NEW POWER! More horsepower for your money than any other truck line—proved by comparisons of horsepower and suggested list prices of *all* trucks!

NEW CARRYING CAPACITY! New bigger payloads. New higher-capacity tubeless tires on every model.

NEW COMFORT AND SAFETY! New *Driverized* Cabs! New, exclusive *Lifeguard* Design safety features.

NEW STYLING! New "leadership look" from Pickups to 65,000-lb. GCW tandem-axle Big Jobs!

Ford's big advancements for '56 can make more money for you than ever. Choice of eight new engines with *Short Stroke design* (reduces piston travel, cuts friction) and up to 26% more power. New *Driverized* Cabs with full-wrap windshields to cut driving strain.

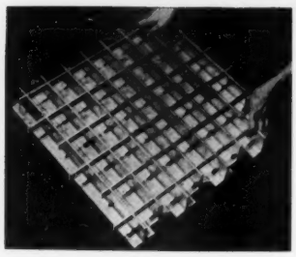
New *exclusive* Lifeguard steering wheel and Lifeguard door latches give added protection in case of accident. New styling builds prestige for your business. *Now on display at your Ford Dealer's.*

New Features for Heavy Construction



New Money Maker—'56 Ford T-800 tandem-axle BIG JOB. New Short Stroke Y-8 engines—up to 200 h.p.—with such extra-long-life features as sodium-cooled exhaust valves. Power Steering, new tubeless tires and tachometer *standard*. New 42,000 lbs. GVW, 65,000 lbs. GCW.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 258



The Blaw-Knox T-Bar floor grating.

Floor grating designed for concrete or asphalt filler

■ A grating designed for use with concrete or asphaltic filler is one of the newest products in the complete line of electroforged steel and interlocked gratings manufactured by Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh, Pa.

Advantages of T-Bar flooring cited by Blaw-Knox include the fact that forms necessary for pouring a concrete floor are eliminated when this grating is used because the T's on the underside of the grating form a retaining surface. In addition, bearing capacity is increased because the T's are placed close together.

Because the surface is armored with the grating's upright cross bars and bearing bars, the flooring can handle increased loads. The over-all dead weight of this type of floor is less than that of standard reinforced concrete.

The T-Bar panel can be made up into 3×20-foot sections and cut to the desired dimension. The T's used in its construction may be from 1×1×⅛-inch up to 6×6×½-inch in size, depending upon the bearing strength required for the flooring. The grating is formed by pressure-interlocking.

For further information write to the company, or use the Request Card at page 18. Circle No. 77.

Bucket-type trencher for wheel tractors

■ A bucket-type trenching machine that mounts on Ford or Ferguson tractors is the subject of a folder from Earth Equipment Corp., 2036 Sacramento St., Los Angeles 21, Calif. The Everett Model 60 trencher operates from the power takeoff of the tractor, but is raised and lowered by its own hydraulic system. The machine digs trenches up to 5 feet deep as fast as 300 feet per hour.

Singled out for special attention in the folder are the hydraulic drive on the trencher's conveyor, belt slip clutch, independent hydraulic system, and the bucket line which features roller action.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 200.

Neo-Flasher names official

Supervising rental and sales operations in the midwest and the east as assistant general sales manager for Neo-Flasher Mfg. Co., Burbank, Calif., is J. Clifford Thebaut. He will make his headquarters in Chicago, Ill.

Sealing Compounds at Work!



sealing paving joints on

OHIO'S "MILLION-DOLLAR-A-MILE" TURNPIKE

with cold applied

PRESSTITE No. 77

All longitudinal and transverse joints in completed sections of the Ohio Turnpike have been sealed with Presstite No. 77. Selection of this cold applied rubber base sealer was based on successful experience of Ohio's Department of Highways, which has used No. 77 in large volume since 1951 with outstanding results.

Experience has proved that No. 77 remains flexible, resilient and adhesive longer, and forms an impervious barrier against passage of water through joints into the sub-grade better than any other type of joint sealer. It remains tough and elastic from sub-zero temperatures up to 140°.

Cold applied No. 77 is pumped direct from shipping drums into the joints under pressure through hose and nozzle, eliminating dangerous, time-consuming heating and equipment cleaning, cutting time and labor costs.

Solve your pavement sealing problems like many other states, cities and airports have done . . . Seal Right with Presstite!

FREE! *20-page catalog describing better sealing methods with cold applied Presstite No. 77.*

PRESSTITE SEALING COMPOUNDS

PRESSTITE ENGINEERING COMPANY

3788 Chouteau Avenue • St. Louis 10, Mo.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 259

one skyscraper coming up



ON ROGERS TRAILERS

Bigley Bros. Inc. of New York City have earned a reputation as specialists in steel girder transportation.

Among several interesting jobs were the hauling of all the steel for the United Nations Building, the New York City Post Office and New Jersey Turnpike Bridges.

Typical of girders hauled up to 110 feet long weighing as much as 95 tons is this girder for the New York Through Way. The front end is mounted on a 75 ton Rogers Low Bed Trailer with the rear on a 35 ton Rogers Pole Trailer.

The confidence displayed in Rogers Trailers by outstanding contractors and riggers suggests that you should thoroughly investigate this complete line before purchasing any such equipment.

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EXPERIENCE builds 'em

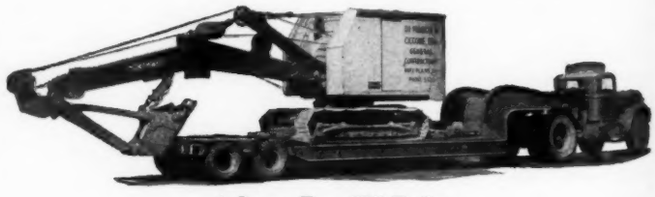
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A Rogers Type "D" Trailer

For more facts, use Reader-Reply Card opposite page 18 and circle No. 260



The Draft-A-Matic desk is designed so that the drawing may be conveniently moved on the drafting platform.

Drafting table adjusts position of drawing

■ A new drafting desk by General Fireproofing Co., Youngstown, Ohio, makes it possible to do all drafting operations in a seated position.

The drafting platform on the Draft-A-Matic desk is equipped with an endless vinyl plastic belt which is 48 inches wide and can accommodate a drawing 72 inches long. This belt moves over aluminum rollers at each end of the drafting platform, so that by turning the wheel at either end of the front roller, the draftsman moves the belt and the drawing affixed to it. In this way he can bring any part of the drawing well within his range of visibility and reach, never having to stand or stretch.

The belt is reported to provide a good drawing surface. The space below the drawing platform can be equipped to serve as a large and handy storage area.

For further information write to the company, or use the Request Card at page 18. Circle No. 8.

Moisture-control unit for concrete plants

■ A newly designed automatic electronic moisture-control unit for concrete products plants is available from Edick Laboratories, Inc., Electronics Division, 427 W. National Ave., Milwaukee, Wis.

The touch of a switch activates the unit to read and measure moisture content in each batch before water is added. It then automatically computes and places the amount of water required to obtain consistent uniform mixes regardless of the moisture content of the aggregate. Once set, this equipment will maintain any desired consistency.

The unit has been designed for fast and simple installation in two steps. Installation involves replacing two liner bolts with identical bolts redesigned as probes and replacing a length of water line with a solenoid and a pressure-regulating valve.

For further information write to the company, or use the Request Card at page 18. Circle No. 51.

Asphalt-heating kettle

■ A leaflet describing its DVP kettle for heating and melting rubberized asphalt compounds is available from Aeroil Products Co., Inc., 75 Wesley St., South Hackensack, N. J. Illustrations and a table of specifications are included.

The Heet-Master DVP kettle is said to deliver controlled uniform indirect heat which preserves the elastic qualities essential to rubberized asphalts. A double-boiler principle assures accurate temperature control at all times, according to the manufacturer, by means of an oil heat-transfer bath. The kettle itself is insulated with heavy compressed rock wool to guard against heat loss.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 194.

Hewitt-Robins acquires Jones firm as subsidiary

The business, manufacturing facilities, and assets of the W. A. Jones Foundry & Machine Co., Chicago, Ill., manufacturer of heavy-duty speed reducers, pulleys, gears, and other accessories for driving machinery, have been acquired by Hewitt-Robins, Inc., Stamford, Conn.

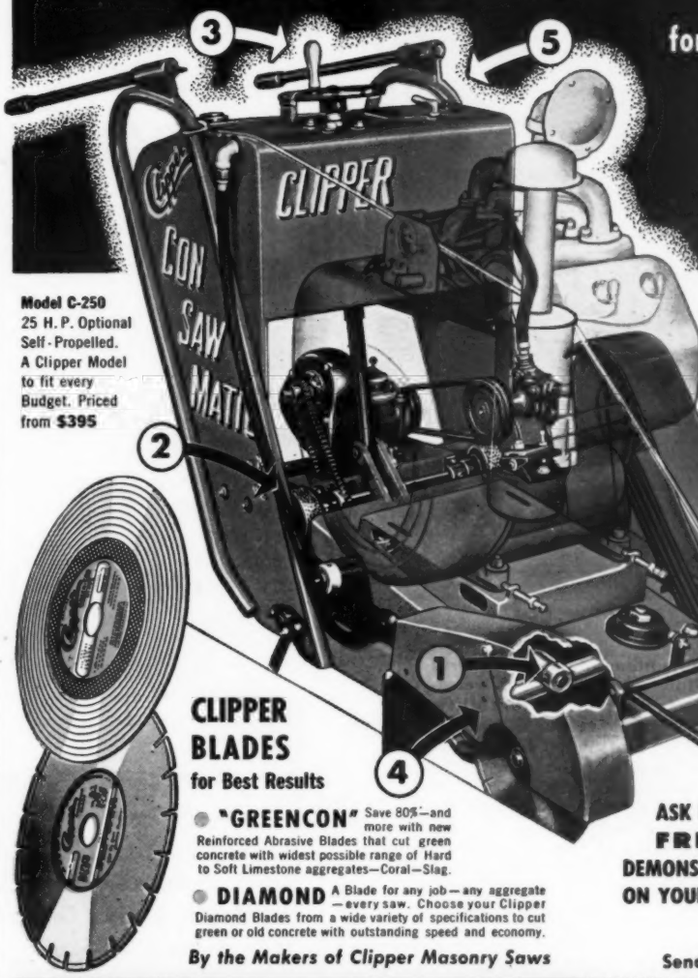
The company will be operated as the Jones Machinery Division of Hewitt-Robins. Thomas A. Jones, president of the present company, will join Hewitt-Robins as manager of operations at the Chicago plant.

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For more facts, use Reader-Reply Card opposite page 18 and circle No. 261

This is the seventh in a series of articles consisting of excerpts from the 1,280-page book, "Moving the Earth", by Herbert L. Nichols, Jr., published last March. Priced at $15, the book is available through the Book Order Department of CONTRACTORS AND ENGINEERS, 470 Fourth Ave., New York 16, N. Y. A copy may be ordered on approval by circling No. 1 on the Request Card at page 18. Approval copies will be billed at $15 plus postage.

Laying pipe

Corrugated pipe can be made up in any multiple of 2 feet. Lengths of 8 to 20 feet are usually carried in stock, and longer or shorter ones are obtainable on special order. Shorter pieces can also be made by cutting the pipe with a torch.

Small and medium sizes are usually unloaded and placed by hand, and medium to large ones lowered with a rolling hitch or with a crane. The crane may use a hitch around each end or around the middle. In addition to the crane operator, another man is needed in this operation to keep the pipe balanced. Soft rope should be used so as not to scratch the galvanizing.

Pipe should not be dragged around on abrasive ground, nor scratched or banged against anything, as such abuse will damage the galvanizing and shorten the life of the metal.

Pipe is lowered into trenches in the same manner as it is unloaded.

The base should be shaped to fit the lower part of the pipe as closely as possible, and this is done by cutting the ground to shape or building up with well tamped fill. The work can be checked by placing and then removing the pipe, and noting whether or not it was in full contact.

If the trench floor is rock, it should be cut from 6 inches to 3 feet below pipe grade—the depth depending on the height of fill to be placed—and backfilled with earth or pea gravel. If it is mud, space should be allowed for enough pea gravel to stabilize the surface. Saplings or wire lath might be laid under the gravel to provide extra stability.

If one end of the culvert is to rest on fill and the other in a cut, the fill under it should be thoroughly tamped to avoid unequal settlement. If the cut is rock, its edge should be beveled to distribute any settlement strains over a longer piece of pipe.

Each section should be placed with the longitudinal seams at the sides. The cross joints should have the external part of the overlap upstream so that if the joint is not tight, seepage will tend to move into the pipe instead of out of it.

If the pipe has a metal date tag, or an instruction tag, it should be on the upstream end of the pipe.

Connecting joints

Sections are usually fastened together by a one-piece band. This is placed under the end of the first piece, and the second laid so that the band will overlap each by the same number of corrugations. The coupler is then drawn tight by turning down the nuts with a wrench.

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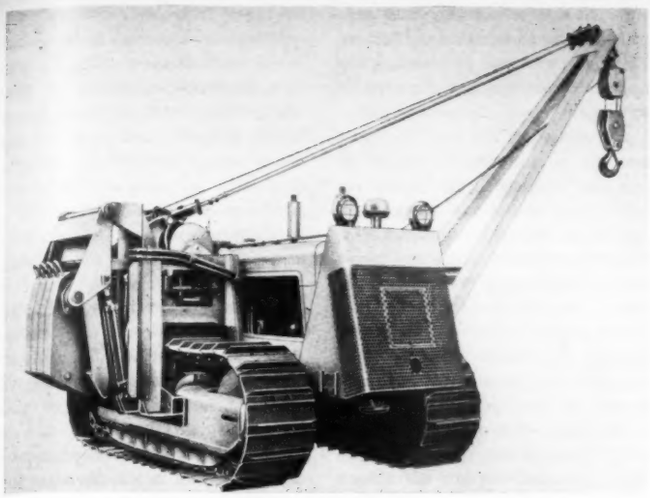


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Tractor with sideboom for handling and laying pipe.

it so that it is higher than it is wide. It is usually done by putting beams and soft compression caps along the top and bottom, pushing them apart with heavy jacks, and placing precut struts to hold them in position.

Joints are made and fill placed and compacted in the usual manner.

Struts are removed after a settlement period of 3 to 6 months, except that if the pipe shows a tendency to bend beside the head beam, or if floods are expected, the struts are taken out immediately.

The pipe will then tend to resume its round shape and, in doing so, will press heavily against the fill on each side, further compacting it. This extra compaction, which is roughly proportional to the load carried, gives additional support against flattening.

Paved or coated pipe is strutted at the factory before treatment. It is elongated with beams and jacks, which are removed after the sides are tied together with cross rods or wires. Paving or coating is then added.

These pipes are usually tamped in until the wires do not have tension, but not until they are perceptibly slack. Struts are cut when they have served their purpose.

In rush jobs, where traffic is stopped or detoured inconveniently during work, the pipe section may be assembled nearby, and carried, pushed, or dragged into position. If pushed by a bulldozer, the front should be held slightly above the ground by a crane, other machine, or a crew of men.

Corrugated pipe can be pushed

This joint resists any force tending to pull it apart, being about as strong as the pipe itself. If the pipe will be subject to very severe stress, a two-piece coupler riveted to one or both sections may be used. The pipes are placed so that the collar lines are up, and the coupler fastened with the bolts and nuts.

If the pipe is large enough to allow men to work inside (36 inches or more ordinarily, but less if a small worker is available), a one-piece band may be installed in the regular way. Holes are then drilled through the bank and the pipes, and bolts are used to strengthen the joint.

If a watertight seal is important, an asphalt sealer may be placed inside the bank before installing, or a special coupling may be used.

Large corrugated pipe may be strengthened against heavy loads by strutting. This consists of deforming



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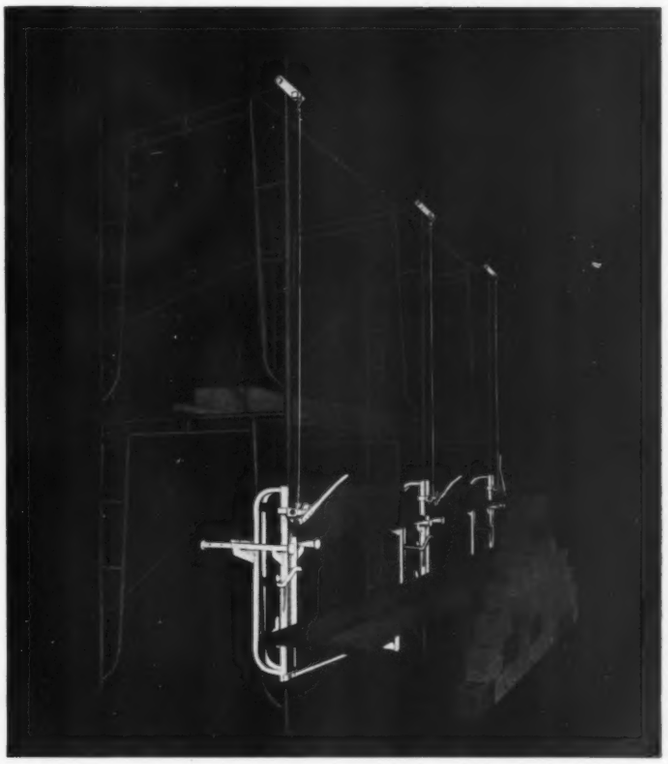
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through an ordinary fill without trenching. An approach trench is dug to line the pipe up, and a heavy backstop built. A trough is made across the trench, at the toe of the fill, to give workmen access to the pipe for riveting joints.

A wood frame is placed against the pipe and is pushed by jacks based on the backstop.

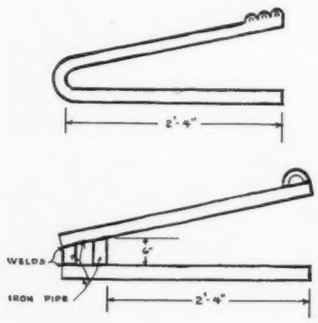
If the pipe is large enough, a man or men can work inside it, digging enough from the face to allow the pipe to be pushed ahead. Dirt may be loosened ahead of smaller pipes by augers or, less commonly, by water jets.

Concrete pipe

The standard length of concrete pipe is 4 feet, except for land tile. The pieces may be unloaded by rolling each pipe so that it will fall from the truck endwise onto soft ground or a couple of old tires. Bell-jointed pipe should be dropped on the straight end.

Pipe up to 2 feet may often be rolled and pried into place by laborers with bars and poles. However, in any size it is more convenient to use some sort of hoist.

Pipe can be handled by any lifting device with power to pick it up, and



Pipe hooks.

enough reach and maneuverability to place it easily. A crane is most suitable for placing it in a ditch, and a dozer shovel for laying it in the open.

A pipe hook is very useful. It permits holding the pipe at the free end and avoids difficulties in balancing it on a chain or sling. Besides, it eliminates any disturbing of the pipe after it is laid by withdrawing the chain.

Care must be taken not to let the hooked end of the pipe rest on anything, as contact might tip it so that it would slide off.

Eight-foot lengths may have a 2-inch hole through the wall at the center. These can be picked up by means of an eyebolt inserted in the hole and caught inside with a nut and washer.

The base is shaped and tamped in much the same manner as for metal pipe.

If the pipe is to be laid in running water, leveling of the bottom for each piece may be difficult. A weighted plank or a wood trough may be placed on the bottom and carefully leveled and blocked up. Straight-sided pipe can be set on this, and only minor adjustment should be required.

If the load of fill or traffic is to be heavy, or the foundation is partly on fill and partly on rock, or is unstable, a concrete bed may be used. A stiff mixture of concrete as wide as the trench, or in forms a foot or two wider than the outside diameter of the pipe and one-quarter of the pipe diameter in depth, is placed on a well-compacted earth base. It is roughly hollowed for the pipe, which is settled into it by rocking, or slight raising and lowering.

Bell-joint pipe requires cross grooves in the bed to accommodate the oversize end.

Pipe is usually laid with the bell or female ends upstream. If this is the case, placement should start at the downstream end. The first pipe can be lowered level, but the others should have the male or free end slightly lower so that it can be guided into place without scraping on the bottom. This tip is arranged by inserting the hook only part way into the pipe, or by pushing down on the free end.

If a section is not held in proper position by the bed, it should be chocked securely with stones or blocks until several more sections are laid, or the culvert is completed. This makes it possible to make any necessary readjustments with less work than if fill is tamped in immediately.

It is difficult to get each joint tight without considerable practice. However, it is often possible to lay several loosely, and then push them together from an end. This may be done by a small dozer in the trench, or by a cable threaded through the culvert to a crossbeam.

Joints

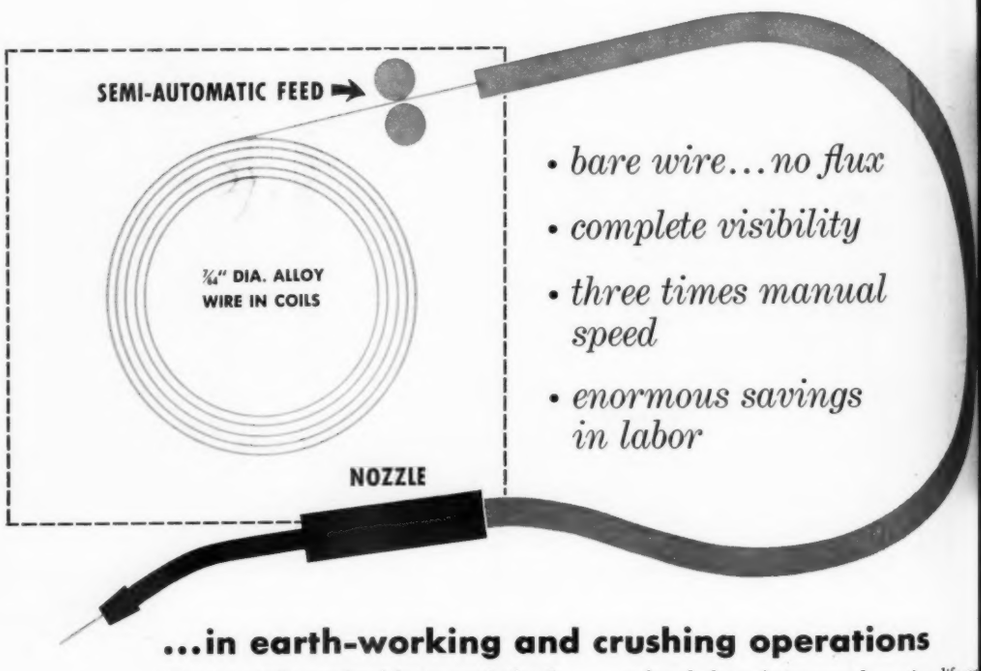
Except in informal or temporary work, joints should be cemented. This is particularly important if water may pond above the outlet so that it will go through under pressure, which might force it out through open joints and cause softening and channeling of the embankment.

Small pipe is cemented by wetting the ends to be joined, and troweling a rich mortar on the upper half of the male side and lower half of the female. It is desirable to rotate the free pipe slightly, after it is in position, to spread the cement evenly. The outer surface of the upper two-thirds can be troweled off.

If the pipes are large enough for a man to work inside, the whole culvert may be placed dry. Oakum is

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then hand tamped into the joint cracks, and cement or bituminous mortar applied from the inside.

If foundation conditions are such that the fill may spread and pull the pipe apart at the joints, the culvert may be held together by heavy deep-based headwalls, or by tie lines.

Tie lines may consist of three rods, cables, or chains, hooked around the end pipes. Turnbuckles or loadbinders are used to tighten them. They may be internal or external.

The inside ties will reduce culvert capacity slightly, and may cause jamming of debris and complete stopping. However, they are accessible for inspection and tightening. Outside installations are difficult to service.

A loose cable is sometimes left inside a small-diameter culvert for use if it becomes plugged with silt. Pulling the cable back and forth will make a small hole which can be enlarged by forcing water through.

Backfill

Proper placing and compacting of backfill affects both the strength of the pipe and the load it has to carry.

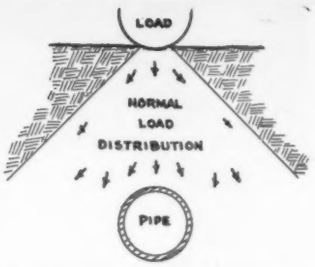
If a round pipe lies on a hard flat surface, and is subjected to load, the entire pressure falls on the line of bottom contact. If the surface is curved, the area of contact is greatly increased, and the load per square inch reduced correspondingly. As the haunches curve upward, the amount of vertical support to each square inch of surface decreases until it is zero at the widest point.

Corrugated pipe is flexible and requires horizontal support as well. A normal load tends to flatten the top and spread the sides. If the sides are held in firmly, the arch form of the load-carrying section is retained and strength kept at a maximum.

No part of the foundation or backfill touching a flexible pipe should be rigid, as the whole pipe should be able to change cross-section shape as it deflects under load, and any rigid support will cause excessive strains, particularly at the edges of the contact.

Rigid pipe receives only nominal support from the side fill.

Fill must be tamped under the pipe haunches. It should be free of lumps, stones, and trash, and should contain enough moisture to pack, but not enough to make it rubbery. It is placed with a hand shovel in thin layers.



Usual distribution of surface load over a pipe.

The tamper should have a narrow edge to enable it to get well under the pipe. If the trench is narrow, the tamper may require a curved handle.

Filling and tamping are done evenly on both sides of the trench to avoid shifting the pipe to the side. It may be necessary to wedge it in place temporarily with rocks or other blocking. Such material may be left and buried if the pipe is rigid, but removed if it is flexible.

Tamping blows should not be so vigorous as to force the pipe up out of position.

When sufficient fill has been placed so that its surface is out from under the pipe, mechanical tampers can be used. Fill should be compacted to the full width of the trench or, if the pipe is on the surface (projection condition), for one pipe diameter on each side. Layers should be 4 to 6 inches deep.

When the pipe is nearly or wholly covered, layers of 6 to 12 inches may be placed, and tamping continued, until the trench is filled to grade.

When an embankment is to be built up on each side of the pipe and above it, much of the compaction can be done by machinery first moving parallel with the pipe, then across it.

A roller working parallel must be kept far enough away so as not to exert a horizontal thrust that will move the pipe. Fill and compaction should be kept even on both sides. Since there is often only one roller available, and it may not be able to get across, the other side may be compressed with a truck or by tamping.

Soil between the rolled strips and the pipe, and between the rolled strips and over the pipe, must be thoroughly tamped.

Successive layers can be rolled closer to the pipe center line. It is good practice to postpone crossing it until the fill is as deep as the outside diameter of the pipe; otherwise, the pipe may be pushed out of line.

Material is pushed to the pipe by a dozer or grader.

The fill may be built up to a depth equal to the outside diameter of the pipe, then ditched directly over the pipe. The trench is filled in loosely, and layers of compacted fill built to the top of the embankment.

The soft fill over the pipe causes the load to be transferred to the solid sidewalls.

If the original trench is backfilled by a dozer, care should be taken not to drop big rocks on the pipe.

(To be continued next month)

HARD-FACING

Stoody Wires



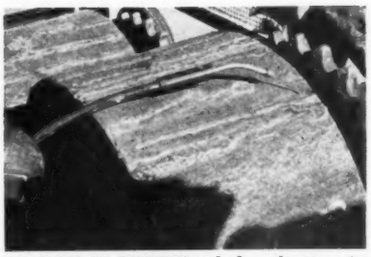
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Stoody 100...a high chromium alloy wire for equipment subject to severe abrasion and impact. This is similar to Coated Tube Stoodite. Used on crushers, buckets, rippers, augers, tool joints. Deposits 10 to 18 pounds per hour.

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BULLDOZER END BITS: *Can be hard-faced in one third of time required by manual process. Stoody 121 is recommended.*

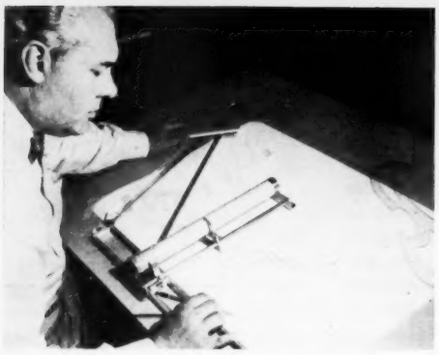


SCRAPER BLADES: *Parallel beads of Stoody 121 are fast and easy to apply to scraper blades, add excellent wear resistance.*



SHOVEL TRACK PADS: *Use of Stoody Manganese applied by semi-automatic welder cuts time on maintenance.*

For more facts, use Reader-Reply Card opposite page 18 and circle No. 266



The American Perspectograph, a new drafting instrument, is used to make accurate perspective drawings quickly from plans and blueprints.

Drafting instrument makes perspective drawings

■ A technical drawing instrument which permits accurate perspective drawings to be made from plans in a fraction of the time formerly required has been announced by the Perspectograph Corp., 285 Madison Ave., New York 17, N. Y. According to the manufacturer, the new instrument, originally developed in France, makes it possible for semiskilled draftsmen to execute swiftly and accurately even the most difficult perspective drawings.

The American Perspectograph is designed to operate on the principle of cylindrical panorama perspective. By means of a calibrated sweep arm and an abacus chart of curves, it enables the user to translate an orthographic drawing into a perspective drawing merely by plotting his perspective points and connecting them. All of the construction work formerly required in the creation of a perspective drawing, such as the locating of vanishing points and drawing of construction lines, is eliminated.

The Perspectograph is designed to produce worm's eye views as well as bird's eye views, and can be used for translating perspectives into orthographics.

For further information write to the company, or use the Request Card at page 18. Circle No. 59.

Cab-over-engine trucks in medium-weight class

■ Three new cab-over-engine trucks in the 17,000 to 21,000-pound gross vehicle weight class are offered by the Motor Truck Division of International Harvester Co. Better load distribution and easier maneuverability are said to be the outstanding features of the new models.

The models are the CO-180, with gross vehicle weight rating of 17,000 pounds; the CO-181, with weight rating of 19,000 pounds; and the CO-182, with weight rating of 21,000 pounds. They are available with 99, 111, 123, 135, or 153-inch wheelbase.

Powered by International Black Diamond 282 engines delivering 137 horsepower, the models in the CO-180 series have five-speed transmission, R-180 single-reduction rear axle, and hydraulic brakes.

Driver convenience and comfort are stressed in the design of the cabs, which are heat and sound-insulated, built low for easy entrance, and designed for good visibility.

For further information on the CO-180 series write to Motor Truck Division, International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 70.

Are You Still Using OLD STYLE WIRE-TYING Methods?



View shows position of reel for left- and right-handed workers.

NOW . . .

You can Save $ $ Plus Man Hours of Costly Wire-Tying Time.

use

Ideal Reel

then see if you can ever again afford to do without it!

here's what it does . . .

Saves Wire: Gives 33% additional usage per pound of wire, on average. Stops waste.

Saves Work-Time: Speeds tying 6 to 8 more ties per minute—480 more ties per hour. Always within easy reach . . . ready for instant use.

Promotes Safety: No bulky shoulder coil of wire to catch on obstacles, to cause fatigue, cuts and scratches. No loose wire ends to injure an eye.

MAIL COUPON TODAY!

Specify *Ideal Reel* **Tie Wire Dispenser**

IDEAL REEL CO.
328 Harahan
Paducah, Ky.
Send Facts on IDEAL REEL.

Name .....
Firm .....
Address .....
City ..... Zone .... State .....

For more facts, circle No. 267



VULCAN
Pile Extractors Pull Toughest Piles

Specialized power for pulling the heaviest, longest, and most difficult steel, concrete, and wood piling. Simple, durable, efficient. Only one moving part . . . requires no assembly or adjustment . . . can't get out of order.

Write today for complete details and name of nearest dealer . . .

VULCAN *IRON WORKS*
327 NORTH BELL AVENUE
CHICAGO 12, ILLINOIS

Manufacturers of Pile Driving Hammers and Pile Extractors since 1852

For more facts, use Reader-Reply Card opposite page 18 and circle No. 268

FELKER DI-MET **MODEL 100**

a "budget-priced" concrete cutter for patchwork and repair jobs!



Let this low-cost 7½ h.p. concrete cutter help you on all maintenance and repair jobs! Light, powerful, easy to handle in tight spots. Blade mounts on either spindle end; lowers and raises hydraulically. Accessory coolant tank available for independent water source. Handles up to 12" blade diameters. Ideal for municipal use; meets budget requirements. Write for descriptive circular on the Model 100. Other DI-MET concrete cutters also available.

FELKER MANUFACTURING CO. TORRANCE • CALIFORNIA

World's Largest and Oldest Manufacturer of Diamond Abrasive Cut-Off Wheels and Machines

FELKER DI-MET SINCE 1924

For more facts, use Reader-Reply Card opposite page 18 and circle No. 269



Equipped with a Napco Powr-Pak four-wheel-drive unit, this Chevrolet truck has extra traction for climbing steep grades.

Four-wheel-drive units increase truck traction

■ Improved new models of the Powr-Pak four-wheel-drive units have been announced for Chevrolet and GMC ½, ¾, 1, 1½, and 2-ton trucks. The conversion units are manufactured by Napco Products Division of Napco Industries, Inc., 834 N. Seventh St., Minneapolis, Minn. They are distributed through Chevrolet and GMC dealers.

The manufacturer states that Powr-Pak equipped trucks will climb up to 70 per cent grades effortlessly, and that such vehicles can haul heavy payloads through mud, sand, or snow-choked roads.

A Powr-Pak requires no frame cutting or any other modification that might weaken or distort the chassis. Simple to remove, the unit can be re-installed on later model trucks, and repair and service facilities are available at every Chevrolet or GMC dealer.

Said to permit easy steering, the Napco drive features constant-velocity joints and low-friction design. This also eliminates highway whip even at high speeds, according to the manufacturer. The turning radius is the same as for standard two-wheel-drive models. A two-speed Napco Powr-Pak transfer case gives eight speeds forward and two in reverse, thus permitting a shift in or out of four-wheel drive at any speed. The transfer case is mounted on rubber to insure quiet operation.

A power take-off, optional at small extra cost, is conveniently located on top of the transfer case and takes full engine rpm and torque for driving winches, power saws, core and post-hole diggers, etc.

For further information write to the company, or use the Request Card at page 18. Circle No. 65.

Allis-Chalmers appoints

A veteran of twenty years with Allis-Chalmers Mfg., Co., Milwaukee, Wis., Robert S. Reaves, has been appointed assistant to the vice president in charge of engineering in the firm's tractor group.

Joining the company in 1935 as a student engineer, Mr. Reaves was later assigned to the Springfield Works Engineering Department and then to the La Crosse Works Engineering Department. He succeeds Harold W. Schudt, who has become president of Canadian Allis-Chalmers.



CINDERS GETTING READY FOR WINTER?

You'll find an EAGLE Truck-Mounted Loader a mighty handy item for handling cinders from stockpile to truck — 3 to 5 yards per minute — one man operated — gets around the yard at regular truck speeds! Many in use in state highway departments.

Send for Details — Folder No. 252-175

EAGLE CRUSHER CO., Inc. GALION OHIO·U·S·A

JAW CRUSHERS • IMPACT BREAKERS PULVERIZERS • CONVEYORS • LOADERS

For more facts, use Reader-Reply Card opposite page 18 and circle No. 270

New design doubles life of crawler tracks

There are two reasons for the spectacular record of KENSINGTON crawler tracks wherever they have been tested . . . (1) improved design, and (2) superior wear-resisting alloyed manganese steel.

First . . . KENSINGTON engineers have designed a one-piece rail that ends the twisting and weaving which contributes to so much wear in ordinary tracks. Further rigidity and near-perfect alignment is gained by use of heat-treated alloy pins pressed tightly in place under high pressure. Grousers are heavied-up at all vulnerable parts to resist bending and breaking.

Yet, despite these important design changes, KENSINGTON *rails and grousers are interchangeable with the original parts furnished with your tractor.*

Second . . . the hard, KENSINGTON-developed alloyed manganese steels actually fight back against wear. They constantly develop extra surface hardness when exposed to friction, abrasion and impact.

KENSINGTON tracks arrive from the factory ready-assembled.

Learn for yourself how KENSINGTON tracks will lower your crawler maintenance costs and improve your operating efficiency. Coupon will bring details.

Kensington STEEL COMPANY

SUBSIDIARY OF POOR & CO., CHICAGO

KENSINGTON STEEL CO.
Dept. A 505 Kensington Ave., Chicago 28, Ill.
● Please send information on crawler tracks for tractor described below. I understand I will be under no obligation.

Make of tractor_____
Model_____ No. tracks per belt_____
Width of grouser_____
NAME_____
COMPANY_____
ADDRESS_____
CITY_____ ZONE_____
STATE_____

For more facts, circle No. 272



THE GENERAL TIRE WITH NEW NYGEN CORD

Only plant in the South equipped to retread tires up through 2700-33. Retreads like new tires at 50% savings.

General's new NYGEN CORD tire has built-in strength. Pound for pound, NYGEN CORD is stronger than steel cables!

Specialists in BIG TIRE SERVICE



WITHIN 1200 MILES OF CORPUS CHRISTI

You save money when you turn your BIG TIRE troubles over to a BIG TIRE specialist. Specially designed field trucks with power tools, giant hoists and built-in light plants will keep your hedvy equipment rolling. Save costly "downtime" by depending on Dickenson to get the job done right and quickly the first time.

CHECK THESE EXTRA FREE ON THE JOB SERVICES

- Complete field service with special equipment
- Fast pickup and delivery within 1200 mile radius
- Periodic inspection on-the-job
- Mount tires
- Rotate tires when necessary
- Furnish "loaners" while doing your retreading.

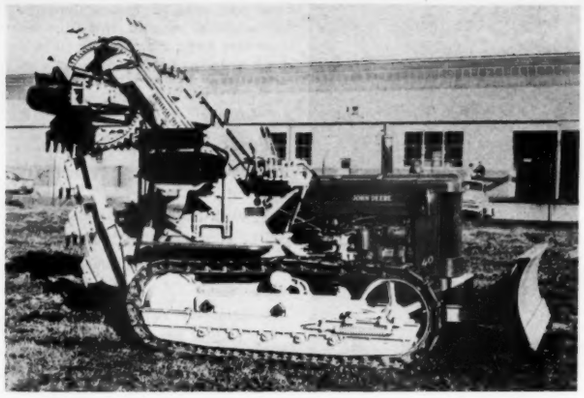
Dickenson dependable service is backed by 25 years experience. Let us show you how our plan can help you at no obligation to you.

WRITE • WIRE • CALL TODAY — COLLECT

DICKENSON GENERAL TIRE SERVICE

323 N. Water Street • Phone 4-7773 • Corpus Christi, Texas

For more facts, use Reader-Reply Card opposite page 18 and circle No. 271



The Universal trencher, especially approved for mounting on the John Deere crawler tractor.

New trencher model digs to 18-foot width

■ The Heller Mfg. Corp. has announced an addition to its trencher line—the Universal model approved especially for mounting on the John Deere 40 crawler tractor. The new trencher has a digging depth of 4 feet and trenches 14, 16, and 18-inch widths.

Designed primarily as a utility trencher, the Universal is said to hold line and grade without effort and to trench easily in a small space. By means of hydraulic controls, the unit switches dirt to either side. A heavy-duty backfiller replaces dirt.

Recommended applications for the unit include cross trenching, square trenching, and pipelines stripping.

The trencher is assembled on precision aircraft jigs to insure fit and interchangeability of parts.

For further information write to the Heller Mfg. Corp., 1849 E. Slauson Ave., Los Angeles 58, Calif., or use the Request Card at page 18. Circle No. 41.

Timken promotions

The job of establishing a new sales-planning department is one of the new duties of E. H. Hughes, who has been named to the newly created post of assistant to the sales director of The Timken Roller Bearing Co., Canton, Ohio. Mr. Hughes joined Timken in 1938.

Other appointments made by the firm include those of J. L. Brown and Don M. Brown to the posts of assistant manager of the sales-order department and manager of the allocations department, respectively.

SHORELINE EXPRESS



Dredging jobs run smoother when you use Naylor Spiralweld pipe. This distinctive pipe is light in weight for easy handling and installation, yet it has the extra strength, leaktightness and safety to withstand rough service. Combined with the Naylor one-piece Wedge-Lock coupling, it provides a most dependable line for getting materials where you want them in a hurry. For full details on Naylor pipe, fittings and couplings, ask for Bulletin No. 507.

NAYLOR PIPE

NAYLOR PIPE COMPANY

1270 East 92nd Street, Chicago 19, Illinois

Eastern U. S. and Foreign Sales Office: 350 Madison Avenue, New York 17, New York

For more facts, use Reader-Reply Card opposite page 18 and circle No. 273



*Seal joints with FLINTSEAL**

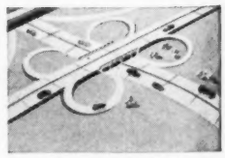
...and keep water from getting under your pavements!

Count on this popular rubber-asphalt compound to keep your concrete road joints free from costly water seepage. Year after year. Without re-pouring.

Flintseal stays extensible and compressible through all weather . . . through expansion and contraction of slabs. It won't crack in cold . . . won't flow in heat. Bonds firmly . . . to keep water and dirt out of joints.

Flintseal (hot-poured), Flintseal JFR (jet-fuel-resistant) and Flintkote Cold Poured Sealers meet state and federal specifications. Accept nothing less than these rubber bearing joint-sealing compounds for positive long-lasting sealing, and economical maintenance.

Ask for literature and application data for roads, streets and airfields.



You find Flintseal is *super* for super-highways. One application lasts for years and years.



Flintseal bonds to joint walls perfectly. Keeps pavement maintenance costs down.

FLINTKOTE

THE FLINTKOTE COMPANY, INDUSTRIAL PRODUCTS DIVISION

30 Rockefeller Plaza, New York 20, N. Y.

BOSTON • CHICAGO HEIGHTS • DETROIT • LOS ANGELES • NEW ORLEANS • PHILADELPHIA

In Toronto, Ontario: THE FLINTKOTE COMPANY OF CANADA, LTD.
In London, England: Industrial Asphalts Company, Ltd.

*REG. U. S. PAT. OFF.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 274



This new Pitman aerial platform can lift 500 pounds at any radius of boom position to a height of 65 feet.

Aerial-boom platform reaches 65 feet high

■ Maneuverability at heights up to 65 feet is claimed for a new aerial platform introduced by Pitman Mfg. Co., 300 W. 79th Terrace, Kansas City, Mo.

The Model I.G.65 Giraffe, Pitman's latest development in the aerial boom field, is a larger version of the Model I.G.40 Giraffe, which has a maximum working height of 40 feet.

The rated capacity of the new model is 500 pounds at any radius, and at any boom position. The boom rotates 360 degrees continuously, in either direction, and the lower and upper boom sections can be operated independently or together.

The superstructure of the I.G.65 is mounted on a revolving turntable along with its independent power source and a 1,600-pound counterweight. Hydraulically-operated outriggers at the front and rear provide stability.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 32.

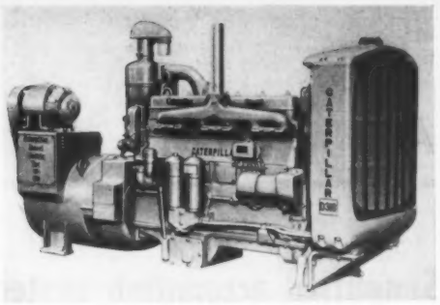
Versatile abrasive blade

■ The development of the new small blade that is easily adapted for use on any make of portable electric and table saw has been announced by Victor Engineering Corp., 15 Maple Ave., Paoli, Pa.

The blade is suitable for cutting miscellaneous metal and ceramic products as well as transite, gypsum board, and tuck pointing. New in design, it comprises several layers of Fiberglas and abrasive.

A fiber brushing inserted into the metal arbor of the blade adapts the new Valsafe blade for use on any saw in a matter of seconds. The blade is available in 6-inch and larger sizes, with adaptor bushings.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 25.



THIS IS THE FIRST MODEL in a new line of diesel electric sets to be manufactured by Caterpillar Tractor Co. featuring a self-regulating generator which provides a steady flow of voltage from no load to full load. Compact design, long life, and ease of maintenance are other features claimed by the manufacturer for this unit. For further information write to Caterpillar Tractor Co., Peoria 8, Ill., or use the Request Card at page 18. Circle No. 76.

Contractor uses three

ADAMS "660s"

to speed tough grading jobs on Ohio Turnpike...



• The Cook Construction Company of Jackson, Miss., is building a 12-mile stretch of the Ohio Turnpike, near North Royalton. For the tougher grading operations on this job they are using three of their 140 hp. Adams "660" Motor Graders.

Commenting on the performance of the "660," Cook Company operator, James Smith, says, "This machine will do everything any grader will do and a lot more. It has more weight and power and higher speeds, both forward and reverse."

Another Cook Company operator, Robert Ault, says, "The '660' is the best machine I have ever operated. It has the power, weight and speed to handle toughest jobs—even grading in rock where it is actually shovel work."

You'll find the Adams "660" capable of doing up to 30% more work than any grader you have ever used. Ask for complete information on this great machine—today!

A Product of Adams Division

LeTourneau-WESTINGHOUSE Company, Peoria, Illinois

Subsidiary of Westinghouse Air Brake Company

ADAMS



Motor Graders TraveLoaders Pull-Type Grad



Douglas Jardine, contractor.

Simplified accounting system eliminates financial guesswork

Daily departmental costs, prices of labor and material, plus to-date figures are carried by single ledger sheet

Accurate cost and profit records, turned out on a daily and accumulated-to-date basis, are permitting the construction firm of Douglas Jardine, Colorado Springs, Colo., to make an analysis of the cost of each job at any moment during the course of work.

This rapid, simple, and low-cost system developed by Jardine and his office staff keeps tabs on the firm's 200 employees and all the individual jobs and operations involved in such projects as grading, excavation engineering, water-line installation, roofing, paving, tunnel boring and dam construction.

At the core of the system are two Burroughs cost-accounting machines which can typewrite, add, subtract, multiply, divide, accumulate totals, and then prove the accuracy of their postings. All computations and totals are made automatically by the machines, which figure material cost and selling price, labor cost and selling price, combined cost of material and labor, overhead, combined cost of material and labor selling prices plus overhead, and net profit. These figures are totaled for each department on a daily and to-date basis for each job.

The cost-profit tabulation system goes into operation as soon as a contract is secured. Work orders are prepared in duplicate for each department involved in a job, and the original is sent to the foremen and the duplicate to the price clerk in the office. Each work order is prenumbered, and this number is shown on every record pertaining to a job.

Department records

Newly designed forms measuring $13\frac{5}{8} \times 10\frac{3}{8}$ inches serve as job analysis ledgers. These, printed in seven different colors and having a colored strip at the top, record work and costs of each of the company's seven departments. The sheet metal department's labor, material, and ledger cards are brown, for instance, while forms for the plumbing department are printed in blue.

All information and figures are posted on the ledger forms. Jardine prefers to have all material described on the ledger, although ticket numbers could be substituted for the description to speed up the operation. He even has workmen's names on the ledgers, so that all information is contained in one record; there is no need for him to refer to ticket files when studying a job record.

Each day, material tickets are prepared by a stockman as material is drawn for each job. Credit tickets are issued for unused material returned to the stockroom. These then go to the price clerk, who also gets the hourly time reports which have been filled in by the workmen, and ap-

ADD PUSH... SUBTRACT FUEL!



AiResearch Turbochargers give your diesel far greater power while actually decreasing fuel consumption, noise and smoke!

In mobile diesel engines, where size, weight and fuel capacity must be limited, AiResearch Turbochargers add more power per inch, pound or gallon of fuel than any comparable installation.

An example is the remarkable success achieved in the recent application of these power packages to Caterpillar diesel machinery.

Equally impressive power increases can be achieved in the application of AiResearch Turbochargers to stationary diesel equipment. Here, the outstanding benefits added to the output boost will be lower operating costs and abatement of noise and smoke problems.

AiResearch is the largest producer of small turbomachinery in the United States, with twenty-five *million* hours of experience. This unmatched experience explains why AiResearch Turbochargers lead in power, economy and dependability. Your inquiries are invited.



THE GARRETT CORPORATION

AiResearch Industrial Division

9225 Aviation Blvd., Los Angeles 45, California

DESIGNERS AND MANUFACTURERS OF TURBOCHARGERS AND RELATED MACHINERY

For more facts, use Reader-Reply Card opposite page 18 and circle No. 276

proved by the foremen. The price clerk then computes the labor costs and labor charges on the time reports, values the material tickets, and sends both to the cost-accounting machine operators for posting to the cost analysis ledgers. A ledger is made out for each work order and shows the basis on which the job was taken at the top of the form.

Using the typewriter section of the machine, the operator first describes material on the ledger. The cost of each material ticket is indexed, and the machine automatically totals and prints material costs, then multiplies them by the job's markup which shows at the top of the ledger, and prints the result on the ledger as the selling price. Labor costs are posted in the same manner, and the labor selling price is furnished automatically.

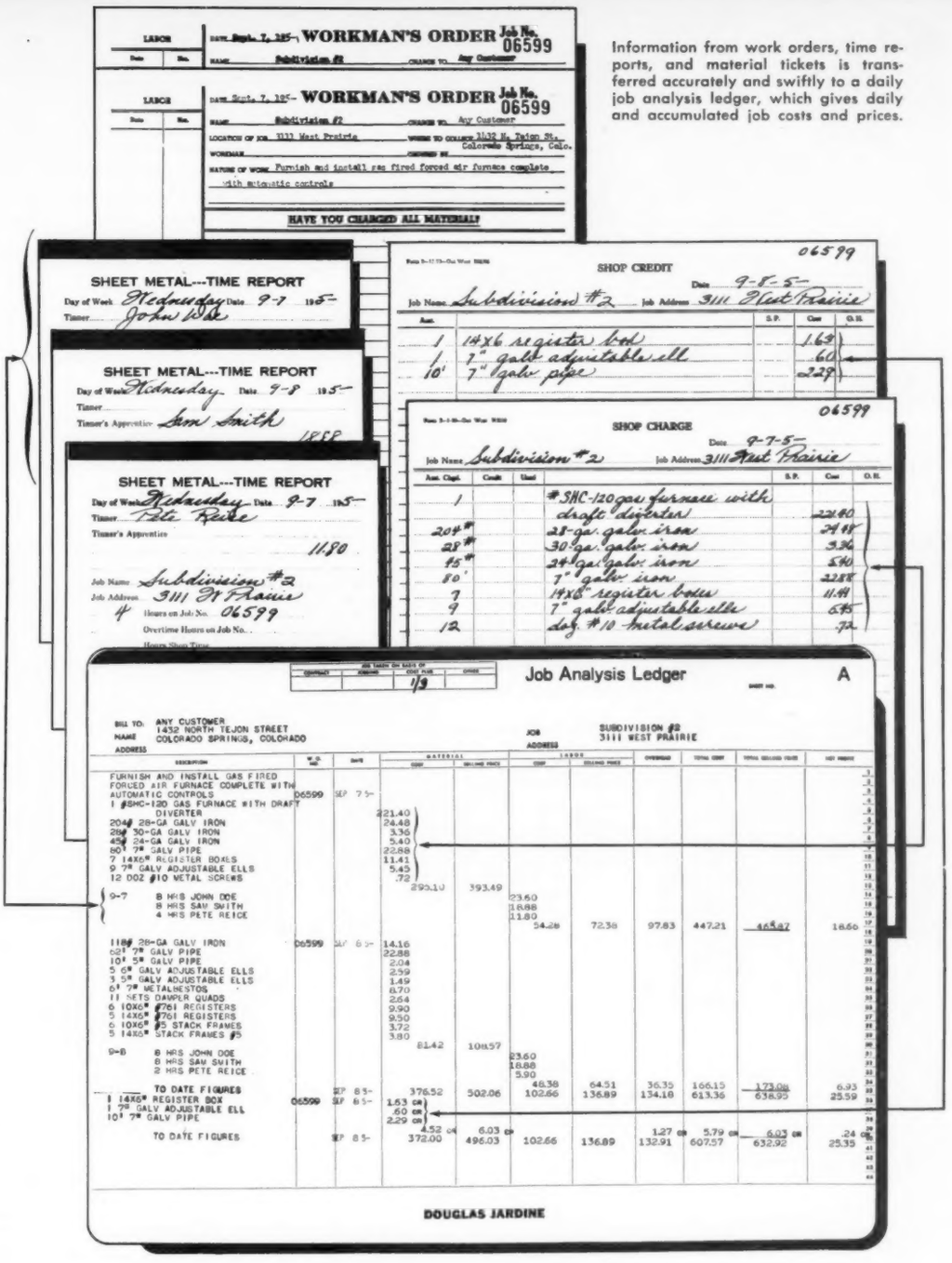
The machine then prints the total selling price of the day's material and labor, then multiplies this figure by the overhead percentage. The result —the day's overhead amount—is added to the total cost of material and labor to give the total cost for the job. The total cost is then subtracted from the total selling price to give the net profit. The entire operation takes only a few seconds.

The total costs, selling prices, and net profit of each department, which has been accumulating in the machine, is then printed on a journal which is prepared as a kind of by-product of the entire operation. This total cost must agree with the total cost figure prepared by the pricing clerk.

Accumulated figures

While the ledger is still in the machine, to-date totals are computed and printed in red ink. This is done by indexing the previous day's to-date totals for material, labor, and total costs shown on the ledger. These amounts are remultiplied by a fixed markup and overhead to secure the to-date selling prices and net profit. The day's figures are then added to

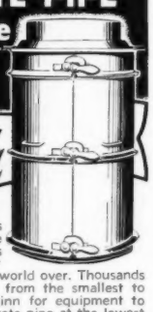
(*Concluded on next page*)



Information from work orders, time reports, and material tickets is transferred accurately and swiftly to a daily job analysis ledger, which gives daily and accumulated job costs and prices.

For the FINEST CONCRETE PIPE You Need the FINEST FORMS!

THE "Quinn" Standard



Backed by over 40 years of reliable service, the QUINN STANDARD is recognized as the finest concrete pipe form the world over. Thousands of pipe manufacturers, from the smallest to the largest, look to Quinn for equipment to produce the finest concrete pipe at the lowest possible costs.

• QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry process. Sizes for pipe from 10" to 120" and larger. Tongue and groove or bell end pipe in any length desired.

WRITE TODAY for complete information and estimates.

Also manufacturers of

QUINN CONCRETE PIPE MACHINES

Quinn WIRE & IRON WORKS
BOONE, IOWA

For more facts, circle No. 277

For more facts, use Reader-Reply Card opposite page 18 and circle No. 278

Simplicity Air Washers *ELIMINATE SMOKE and DUST*

Prevent or settle many court orders and lawsuits • Improve morale of the plant crew

Protect expensive machinery from destructive dust and smoke • Improve public relations

Simplicity Air Washers are inexpensive but highly efficient. They are a part of most Simplicity Asphalt Plants and have been successfully added to other makes of plants.
Full details and price on request.
No sales annoyance from us. No obligation.



THE SIMPLICITY SYSTEM COMPANY
DIV. OF WEST CONSTR. CO.
DEPENDABLE
Riverside Dr., Chattanooga 6, Tenn.
Phones: 2-2144, 2-2145, 2-7667

A SIMPLICITY AIR WASHER COSTS LESS THAN THE PRICE OF A FEW DAYS PLANT SHUT DOWN



Ledgers are completed in a few seconds on these two Burroughs cost-accounting machines in the Jardine firm's office. They automatically do all types of figuring and check their results.

the former to-date figures to secure the new to-date figures.

Each day's ledger for a department is usually completed within a minute or two, although the time required will vary, depending on the size of the job. Each of Jardine's two machines easily handles up to 1,500 tickets for about 100 ledgers.

Accounts receivable

Before the accumulated totals are printed by the machine, the total selling price is automatically underlined to set it off for accounts receivable posting.

Ledgers sent to accounts receivable are sorted alphabetically by department by a machine operator. Then customer's ledgers, statments, and a journal are prepared in one operation, with new balances and all computing done automatically by a Burroughs typewriter-accounting machine with ten memory registers.

Distribution totals by departments for labor and material costs, selling price, overhead, net profits, and nontaxable material sales accumulate in the machine during accounts receivable work, and are printed on the accounts receivable journal at the end of the run. These totals agree with the totals printed on the cost journal, for if any error is made, the machine locks immediately to notify the operator that a mistake has been made. The totals on the accounts receivable journal are posted to the general ledger, simplifying closing work at the end of the month and the preparation of the financial statement.

These statements are sent to customers on a monthly progressive billing basis. This facilitates collections, and reduces investment in accounts receivable for Jardine, while giving the customer a monthly report of job progress.

When a contract has been completed, the original work order submitted to the foreman accompanies the final charge tickets to the price clerk, advising him that the job is finished.

The job-cost system is operating so rapidly and accurately that one of the cost-accounting machines is being used to prepare the payroll for the company's 200 employees. In one operation, the machine completes an employee's check, statement, earnings record, and the payroll register. Payroll work begins on Monday morning—the day after the pay period ends—and by Tuesday afternoon the entire payroll is completed.

Jardine's system is giving him just what he wanted—complete information, either on a daily or accumulated basis, on any job at any time—information that is of vital importance for any contractor with the high operating costs and low profit margins prevailing in today's market.

THE END

New rubberizing material

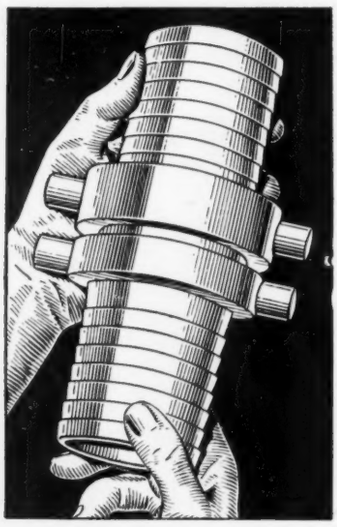
■ Complete details on the development, properties, and applications of a new rubberized material for use in bituminous paving mixes is available from Rubarite, Inc., 141 W. Jackson Blvd., Chicago 4, Ill.

The new material, Rubarite, is said to improve flexibility, impact resistance, temperature stability, and aging characteristics of asphalt and tar. Consequently, it is especially recommended for use in highway, street, and airfield paving.

Besides discussing various methods of rubberizing, the brochure reports results from the use of Rubarite in hot-mix work, as a seal coat or light surface treatment, as a joint filler, and as a fuel-resistant surface for jet airfields.

To obtain this brochure write to the company, or use the Request Card at page 18. Circle No. 43.

Remember—Safety is no accident!



"KING"
Shank Coupling

This is the Shank Coupling which the Construction Industry and all other users of suction and water hose rely on for long, reliable service, regardless of rough handling.

The "KING" is a brute for punishment, yet thoroughly refined in every detail of manufacture . . absolute uniformity in quality, dimensions and threading . . . well defined, smoothly finished corrugations. Made in light and heavy patterns, in all-malleable iron, plain or plated; all-brass; and plain or plated malleable iron shanks with brass swivel nut. Size range from 1" to 8", inclusive.

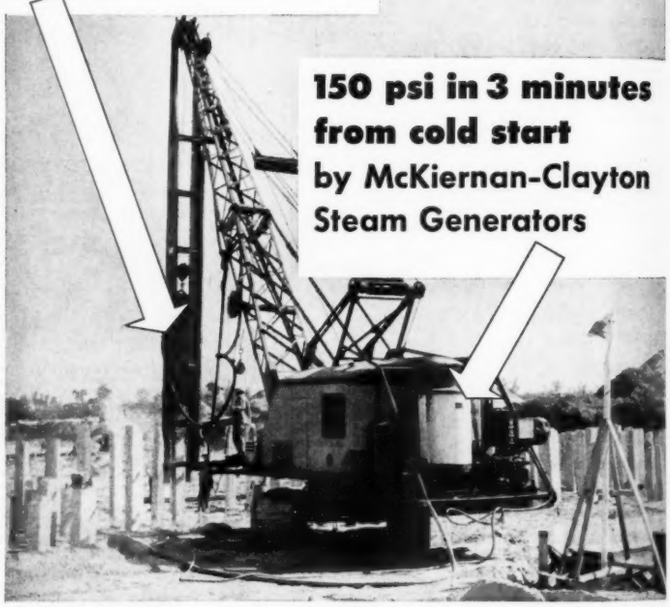
Stocked by Manufacturers and Distributors of Industrial Rubber Products

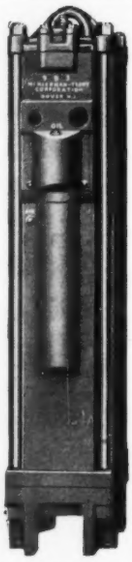
DIXON
Valve & Coupling Co.
GENERAL OFFICES & FACTORY—PHILADELPHIA 22, PA.
BRANCHES—CHICAGO · BIRMINGHAM · LOS ANGELES · HOUSTON
DIXON VALVE & COUPLING CO., LTD., TORONTO, Associate Companies:

For more facts, circle No. 279

Driving 200 piles per 8-hr. shift by two McKiernan-Terry Pile Hammers

150 psi in 3 minutes from cold start by McKiernan-Clayton Steam Generators





McKiernan-Terry 9B3 Double-Acting Pile Hammer

Paul Smith Construction Co. of Miami, Florida, wanted to make short work of driving 4,000 concrete piles and 14,000 timber piles for the foundation of the Miami Sewage Treatment Plant.

Two McKiernan-Terry 9B3 Double-Acting Pile Hammers, each powered by a McKiernan-Clayton Steam Generator tail-mounted on a crane, did the job at the rate of a pile in less than 5 minutes, including all operations, for the entire lot of 18,000 piles.

No wonder the contractor reported that all the McKiernan-Terry Hammers and McKiernan-Clayton Generators "gave very good service." Write for bulletins on these job-speeding units.

McKIERNAN-TERRY CORPORATION
Manufacturing Engineers
80 RICHARDS AVE., DOVER, NEW JERSEY

McKIERNAN TERRY

MK-989

For more facts, use Reader-Reply Card opposite page 18 and circle No. 280



The Sherman reversing transmission for Ford tractors provides five forward and five reverse speeds.

Reversing transmission aids tractor operation

■ A reversing transmission designed for use on Ford tractors and said to add new convenience and speed in operations where reverse speed is as important as forward speed, has been introduced by Sherman Products, Inc., P. O. Box 430, Royal Oak, Mich.

By providing for five forward and five reverse speeds, the unit permits fast shuttle operations of the tractor for maneuvering into position or working with front-end equipment. Specially designed for use with the Sherman fork-lift atachment or with loaders, scrapers, and dozer blades, the new reversing transmission incorporates the same speeds in reverse as those now available in forward gear. Constant-mesh helical gears and antifriction-type bearings are used throughout the unit.

The new Sherman reversing transmission has been engineered for quick and easy installation on Ford tractor Models 640, NAA, 2N, 8N, and 9N.

For further information write to the company, or use the Request Card at page 18. Circle No. 13.

Cold-applied compound for bituminous surfaces

■ A new bulletin explains the advantage of sealing bituminous paving on low-traffic areas such as walks, drives, parking lots, and playgrounds with a cold-applied asphaltic compound called Laykold Walk-Top.

Available in red, green, or black, the product provides a colorful, moisture-tight, and nonabrasive surface for pavements. Because of its tough and weather-resistant properties, it prolongs the life of the pavement for many years, according to the bulletin.

A filled, buttery, fibrous, asphaltic composition, Walk-Top is factory prepared for easy cold application by brush or squeegee. The product is reported to remain nonskid.

To obtain this literature write to the American Bitumuls & Asphalt Co., 200 Bush St., San Francisco 11, Calif., or use the Request Card at page 18. Circle No. 29.

Catalog on twin-engine diesel crawler tractor

■ A four-color catalog available from the sales promotion department, Euclid Division of General Motors Corp., 1361 Chardon Road, Cleveland 17, Ohio, describes the new Euclid TC-12 Twin-Power tractor, which went into production this past summer.

The catalog describes the revolutionary design of this tractor, which has two 194-hp diesel engines and separate Torqmatic drives for each track, giving it a total of 388 horsepower delivered to the power train. Other unusual features illustrated are rear radiator mountings, separate and independent track drives, and hydraulic track tension.

To obtain Form No. 601 write to the company, or use the Request Card at page 18. Circle No. 198.

Motor-driven brushes clean soil sample tubes

■ Soil-sample tubes used in testing base on road-building and other construction projects can be cleaned quickly and thoroughly with a compact unit offered by the machine division of the Fuller Brush Co. The machine employs two brushes to remove dirt and rust from the inside and outside of testing tubes.

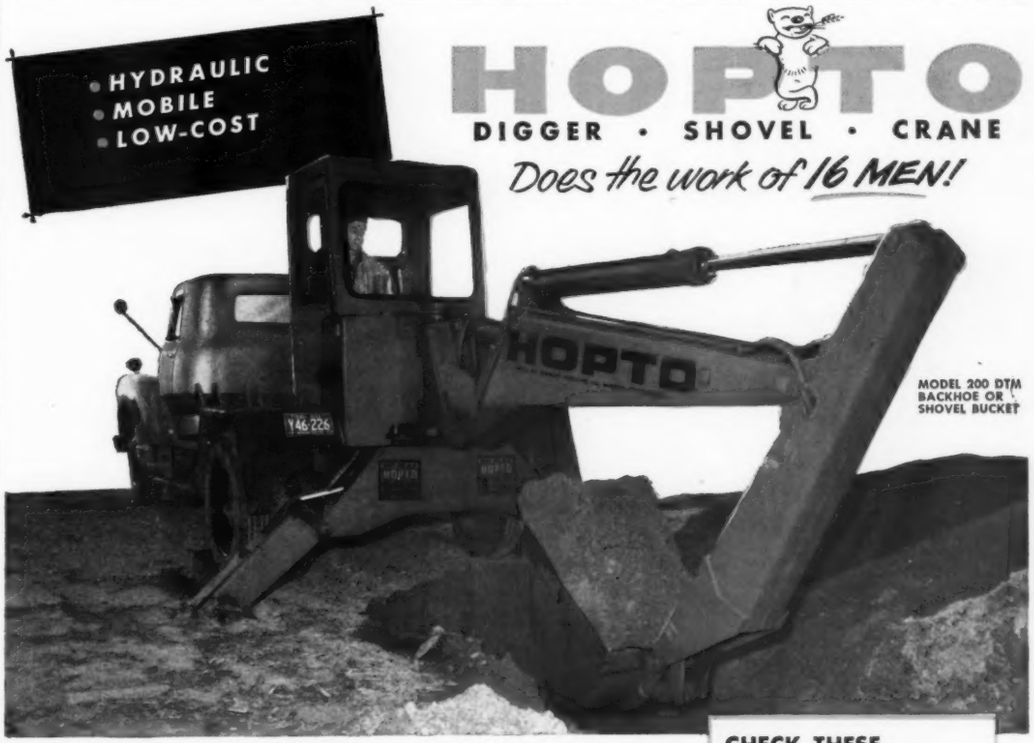
Small enough to be mounted on a work bench, the machine is operated by a 2-hp motor. A Fullanchor wheel brush of crimped steel wire cleans the exterior of the tube, while a coil-type Fullergript steel-wire brush cleans the interior. Half the tube is cleaned at a time in an operation which reportedly saves both time and effort.



The Fuller soil-sample tube cleaner.

The tube cleaner can be adapted to suit specific requirements.

For further information write to the Fuller Brush Co., Machine Division, 3526 Main St., Hartford 2, Conn., or use the Request Card at page 18. Circle No. 68.



digs DEEP... lifts HIGH... easy to operate!

Here's the fast-cycling HOPTO unit that equips you to profitably handle more jobs at lower equipment investment! The completely hydraulic HOPTO mounts on any 1½ ton or larger truck . . . one that may have been 'written off' but can still serve as a mobile base for this work-hungry, big-capacity unit!

Four simple and easily mastered control levers give finger-tip operation that is fatigue-free. That means more work done *more safely!* Retractable hydraulically operated outriggers quickly level unit . . . provide a solid, *safe* base from which to operate.

OTHER MODELS

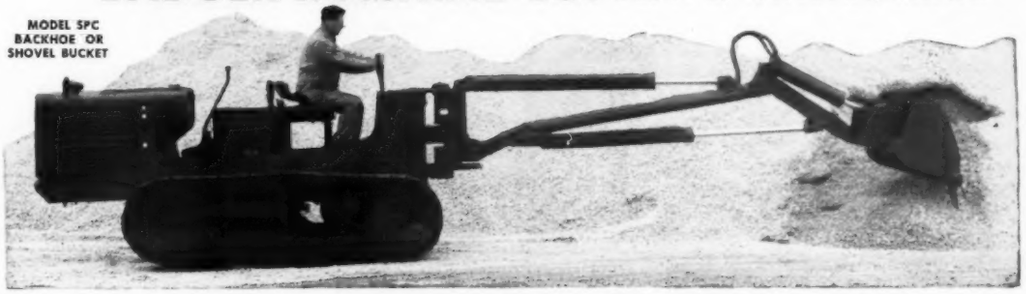
From the large track-type continuous Badger Trencher down to the trailer-type HOPTO, Badger manufactures a complete quality line of digging equipment. HOPTO is also available as a power take-off operated or self-powered trailer model, as a unit for rear mounting on track-type or wheel-type tractors, as a complete self-powered wheel unit, the crawler unit shown below, the truck mounted unit illustrated above and a slightly smaller unit for truck mounting. HOPTO builds a *quality* unit to meet *your* needs, *exceed your expectations.*

CHECK THESE HOPTO FEATURES

- Dipper stick extension tilts digging unit 135°; permits straight side, vertical digging. Eliminates hand work.
- Digs 11½' below surface.
- Lifts 13½' high with shovel bucket; more than 9' with backhoe.
- Alloyed steel hardened pins and self-aligning bearings at all pivot points.
- Variety of widths and types of backhoes and shovel buckets.
- Backhoes and shovel buckets have H & L teeth.

WRITE FOR FREE FOLDER!

BADGER MACHINE CO. DEPT. E, WINONA, MINN.



For more facts, use Reader-Reply Card opposite page 18 and circle No. 281

New Terratrac crawler models have heavy-duty power features



The new Terratrac Model 600, equipped with Terramatic instant-shift transmission and Borg-Warner torque converter, offers unusual maneuverability either as a tractor-loader, bucket capacity 1 cubic yard, or dozer. ►

■ Power and drive features once the exclusive property of their big brothers have been incorporated in a line of rugged crawler tractors designed especially for the small contractor's use, and for those innumerable small jobs found on even the biggest projects.

American Tractor Corp., Churubusco, Ind., unveiled this impressive line of small crawlers—and revealed plans to enter the medium-size tractor field next year—at a recent "Tractorama" press preview held at its Churubusco proving grounds. Along with the tractors, the company demonstrated auxiliary equipment and hydraulic attachments which give the basic units wide application in the lighter earthmoving and material-handling fields.

Undisputed champion in this line of tough little guys is the Terratrac Model 600, a husky brand-new unit equipped with both torque-converter drive and the new Terramatic transmission as standard components—yet priced in the neighborhood of $6,000. Rated at 57 belt horsepower, the 600 is capable of up to 15,860 pounds drawbar pull with adequate weight and traction. Four forward and four reverse speeds, as well as an infinite number of in-between speeds provided by the torque converter, permit instant adaptation of the tractor to a variety of work conditions.

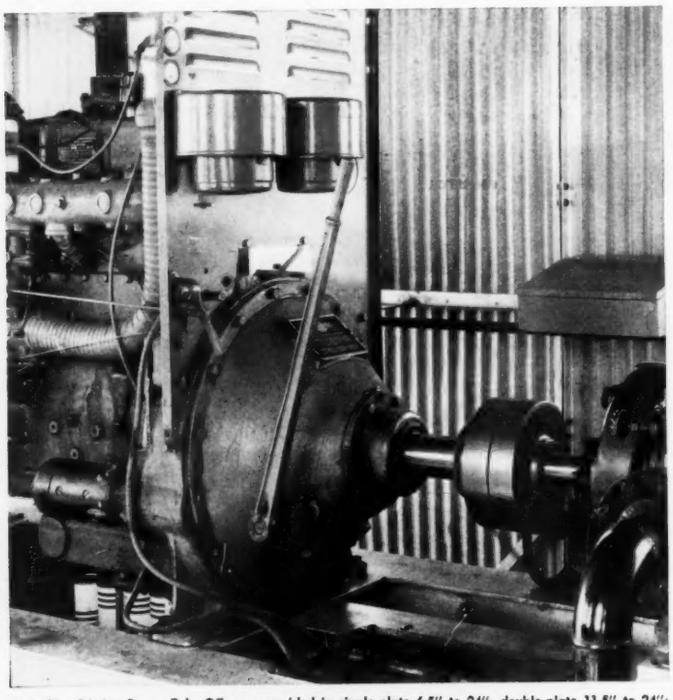
The Terramatic instant-shift transmission, built especially for Terratrac crawlers by Transmission & Gear Co., Dearborn, Mich., combines a constant-mesh gear train with hydraulically operated clutches to provide automatic shifting in any speed or direction without loss of momentum. Unusual maneuverability is the result. As demonstrated in the "Tractorama" preview, the new transmission gives the 600 literally finger-tip control for full-power turns and foot-pedal control for pivot turns. Top forward speed is 5.68 mph, while top reverse speed is 6.2 mph—reportedly double the reverse speed afforded by any other crawler in this class.

Torque converter

A Continental Red Seal engine, either diesel or gasoline, powers the Model 600. The Borg-Warner two-stage torque converter multiplies engine torque 2.17 to 1, and is thus said to practically double the work-load capacity of the tractor as a dozer or loader unit. Jolting shocks are harmlessly absorbed by the hydraulic cushioning action of the converter, and the chance of the engine stalling is said to be virtually eliminated. Faster work cycles, which result in higher daily output, and less danger of machine damage by careless or inexperienced operators are claimed as outstanding advantages of this converter-equipped model.

The Model 600 is 9 feet 2 inches long (13 feet 4 inches with loader bucket) and 5 feet 2 inches wide. Track length is 62⅝ inches, and track width is 14 inches. The model weighs 9,500 pounds.

Available as attachments for the 600 are a 1-cubic-yard loader bucket, a 72×31½-inch dozer blade, an 88×31½-inch angling dozer blade, a Pippin hydraulic backhoe offered in a choice of bucket sizes, and a 10,000-



Twin Disc Friction Power Take-Offs are provided in single-plate 6.5" to 24"; double-plate 11.5" to 24"; triple-plate 14" and 18". Housing sizes No. 6 SAE to No. 00 SAE. Capacities to 650 hp. Typical installation shown is on a Waukesha gas engine. Request Bulletin 129-C.

Known by the power it applies

To both the engine manufacturer and user, the power take-off—connecting driving and driven equipment—is one of the most critical components in the driven line. Here is the vital link where all horsepower and torque must be transmitted before any work is accomplished . . . a link which can become a costly "Achilles" heel through failure on the job.

In specializing exclusively since 1918 in the design, manufacture and application of industrial drives for powered equipment, Twin Disc has developed Friction Power Take-Offs that assure trouble-free operation throughout the working life of machines to which they are applied. Designed for superior performance, they are backed for their lifetime with unparalleled service.

That's why the Twin Disc Power Take-Off is known by the power it applies. Throughout industry, you see them behind engines built by the world's leading manufacturers . . . for both manufacturers and users know *this* Power Take-Off will never become an "Achilles" heel on the job, to either operation costs or production schedules.

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES

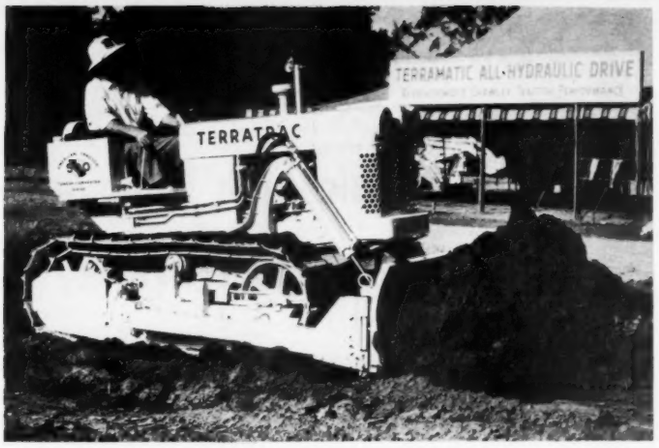
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For more facts, use Reader-Reply Card opposite page 18 and circle No. 282



Torque-converter drive is available in the low-priced crawler field for the first time on the Terratrac Model 500. Besides straight and angling dozer blades, the unit uses a ¾-yard loader bucket.

pound four-speed winch hydraulically controlled from the operator's seat.

Runner-up for honors in this line of crawlers is the Model 500, a diesel or gasoline-engine (Continental, like all the Terratrac models) unit which augments its standard transmission with torque-converter drive—yet sells for less than $4,200. This brings the torque converter feature for the first time into the price range of the small contractor. The 500 develops 47.2 belt horsepower and approximately 12,000 pounds drawbar pull. A ¾-yard loader bucket and all the attachments for the 600 except the hydraulic winch are available for this model.

The Model 500 measures 8 feet 6 inches in length (12 feet 4 inches with loader bucket), is 5 feet 1 inch wide, and weighs 8,600 pounds. Track length is 60 inches, and track width is 13 inches.

Three smaller crawlers without torque-converter drive complete the basic tractor line. The Models 400, 300, and 200 work with loader buckets or dozer blades. The Model 300 is available with either diesel or gasoline engine; the other two are gasoline-powered.

Fork-lift unit

Also spotlighted at the preview demonstration was the M-3, a crawler-mounted 3,500-pound-capacity fork-lift unit with a 14-foot 3-inch mast which extends to a full height of 21 feet 4 inches. Besides the fork lift, this unit uses such attachments as an angling dozer blade, a loader bucket, a log grab, and a special hopper bucket for handling concrete.

Recognizing the transportation problem involved in using crawler tractors, American Tractor has also introduced two tilt-type low-bed trailers for hauling the Terratrac tractors. A 9-ton tandem-axle unit or a 5-ton two-wheel model are available—with purchase of a tractor—at about half the usual price for these trailers. Both have electric brakes, and permit loading and unloading without the operator dismounting from the tractor. The 9-ton model, which hauls the Models 600 and 500 tractors, is 18 feet 7 inches long.

All the Terratrac loader buckets, which range from 1 yard down to ½ yard in capacity, feature direct-action hydraulic lift and tilt cylinders. Maximum clear dumping height is over 9 feet. Lift and tilt arms of the three largest models of cast steel allow for maximum strength and efficiency.

American Tractor officials also have announced plans to introduce, within the next six months, two larger crawlers with attachments. These projected models will, the company reports, compete with medium-sized tractors now manufactured by other firms.

For further information on the Terratrac line of small crawlers and attachments, all of which are now in production, write to the American Tractor Corp., Churubusco, Ind., or use the Request Card at page 18. Circle No. 36.

1105...YES, ELEVEN-O-FIVE

is the new-strength wire in Roebling's

Royal Blue

WIRE 1105 ROPE

AS SIZES and constructions go, Royal Blue is like the ropes you have used until now... but the likeness ends there.

Royal Blue is made of Roebling's new 1105 wire, the strongest, toughest wire developed up to now for use in any wire rope.

Royal Blue Wire Rope is as enduring as the wire from which it is made.

Write us for full facts on Royal Blue Wire Rope, or contact your Roebling distributor.



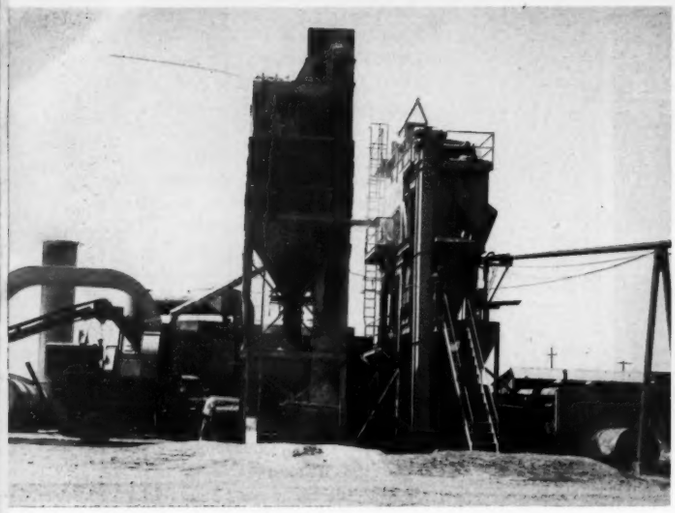
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JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, 19 RECTOR ST., NEW YORK 6, N. Y.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 283



An all-electric Madsen No. 222 hot-plant kept hot-mix production hovering at the 200-ton-per-hour mark during the course of the airport job.

Rigs handle high tonnage in airport overlay paving

More than 200 tons of asphaltic concrete turned out hourly permit 80,000-ton project to be done within 60-day limit

By keeping hot-mix production at a 200-ton-per-hour mark or better, and by using a combination of lay-down methods to handle this high production, Gibbons & Reed Co., Salt Lake City, Utah, completed an 80,000-ton asphaltic-concrete overlay job at the Salt Lake City Municipal Airport within a 60-day contract time limit and saved the city about $40,000 on the project. The engineer's estimate for the job, which was financed by Salt Lake City, CAA, and the National Guard, was $331,000. Gibbons & Reed did the work on its contract bid of $290,623.

With the exception of one main runway constructed last season, virtually all the paved facilities at the airport were overlaid with hot-mix asphalt. Though the old portland-cement concrete or asphaltic-concrete pavement had not deteriorated too much, the portland-cement concrete sections had failed to some extent and some of the bituminous pavement had developed cracked areas. The prime purpose of the present work was not to correct previous construction as much as it was to re-establish good drainage and strengthen the parking apron and



ALL-WELDED BOOM with Gooseneck Design for Deep Digging

FAST on the Job...EASY to Handle!

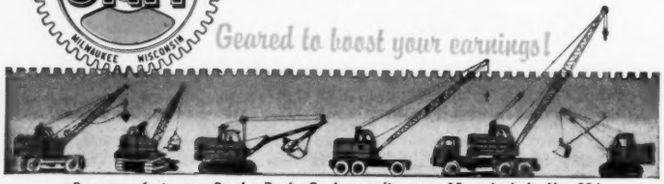
Added to the UNIT line of proven equipment, is the New UNIT CHALLENGER. Here's a modern ⅜-yard machine that provides a perfect combination of design and construction. Packed with new advanced engineering features: **Self-aligning Hook Shoes . . . Force Feed Lubrication . . . Full Floating Trunnion-Mounted Tapered Drums . . . Torque Converter,** etc., the New UNIT CHALLENGER is the most dependable machine that money can buy.

Bulletin C-800 completely describes and illustrates the New UNIT CHALLENGER.

Send for Bulletin Now

UNIT CRANE & SHOVEL CORP.
6309 W. Burnham St. • Milwaukee 14, Wis., U.S.A.

Geared to boost your earnings!



For more facts, use Reader-Reply Card opposite page 18 and circle No. 284

Mixing ZERO SLUMP Concrete is "*Duck Soup*" with this WISCONSIN-POWERED



SMITH
T. L. SMITH CO. MILWAUKEE U.S.A.

Truck Mixer



This is the Model VF4D Heavy-Duty Air-Cooled Engine that supplies dependable, all-weather power for the 3½-yard Smith Deluxe Truck Mixer.

Mixing low slump concrete in zero weather is the toughest job you can give a concrete mixer. The concrete resists flow, doesn't slide down the discharge blades readily and puts a terrific load on both the mixer and its power unit. But it's all in a day's work for this 3½-yard, open-end, close-coupled Smith Truck Mixer. It handles the stiffest and stickiest concrete with ease and efficiency in any weather . . . and the Wisconsin Model VF4D Heavy-Duty Air-Cooled Engine supplies adequate power even with a 5-yard load and 0 Slump, according to The T. L. Smith Co., Milwaukee, Wisconsin.

The Wisconsin VF4D Air-Cooled Engine, delivering 25 hp. at 2400 rpm., has the built-in Lugging Power that keeps the job moving through the shock-load pinches without stalling. Heavy-duty features include tapered roller bearings at BOTH ends of the crankshaft, Stellite exhaust valves and valve seat inserts, positive type valve rotators . . . for long engine life and minimum maintenance . . . *plus* foolproof AIR-COOLING from sub-zero to 140° F.

YOU can't do better than to specify "Wisconsin Power" for your equipment.

MOST H.P. HOURS

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

For more facts, use Reader-Reply Card opposite page 18 and circle No. 285



◄ In one area at the Salt Lake City Municipal Airport a Caterpillar No. 12 motor grader spreads to rough lines plant-mix which has been dumped by trucks.



Barber-Greene finishers work almost abreast on opposite sides of a runway strip. ►

various runways for heavier loads.

This summer's work included an overlay on the diagonal northwest-southeast runway which measures 5,400×150 feet, a main north-south runway measuring 6,710×150 feet, the east-west runway and taxiway measuring 3,500×150 feet, and a 2,700×100-foot taxiway. Almost all the main aircraft-parking ramps extending from the administration building north to the National Guard center were also given a hot-mix asphalt overlay. At its deepest, the new pavement is about five inches thick. In general, it is feathered from a thickened section along the center line of the runways to thinner sections along the edges.

The overlay was put down in two courses, the leveling course using 1½-inch-maximum aggregate and the surface course using ¾-inch-maximum aggregate. The material was mixed with a 120 to 150-penetration asphalt, designed to meet both CAA and National Guard criteria. Compaction specifications on the base course were 92 per cent, with minimum Marshall stability of 1,600. Surface-course compaction called for a 95 per cent minimum, with a Marshall stability factor of at least 1,800.

Permanent plant setup

One of the things which made the job move fast and held overhead costs to a minimum was the contractor's use of its permanent Madsen No. 222 hot-plant, which was located about three miles away at its Salt Lake City headquarters. Although the plant was originally purchased for a highway-paving job in Nevada, it has remained set up on a permanent basis at the company yard, 8th W. St. and 11th N. St., for two years, and sufficient work has been under way in the area to keep the plant busy.

The plant has a good smoke-control device, with cleaners that effectively control dust and dirt which might cause complaints in the northwestern residential area of the city. Driven by a Caterpillar D17000 diesel engine, the plant is all-electric and has push-button starting and stopping controls. Electric safety controls shut down all machinery in case something goes wrong at the feeder trap, on a conveyor belt, at the screens, or in the dryer.

The yard is served by a railroad



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ASPHALT MIXING PLANTS
2000 TO 6000 LB. CAPACITY

20 years experience in design and manufacture of this truly balanced equipment, assures McCarter customers of standardized parts and minimum costs.

McCarter standard plants — designed and manufactured in their own works are readily adaptable to your special requirements. Individual units also available.

DRYERS (hot or hot & cold material, center outlet type) • MIXERS • ASPHALT BUCKETS (Steam, hot oil or electric heated) • AGGREGATE HOPPERS • BINS • APRON TYPE FEEDERS • CYCLONE COLLECTORS • ELEVATORS • STEEL STRUCTURES

Our Sales Engineers will gladly consult with you!

REPAIRING AND REMODELING OLD PLANTS—A SPECIALTY

McCARTER IRON WORKS, INC. Norristown, Pa.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 286

IN NEW YORK CITY



THE INGALLS IRON WORKS COMPANY

Fabricating Steel is our Business

BIRMINGHAM, ALA. • PITTSBURGH, PA.

SALES OFFICES: Birmingham, New York, Chicago, Pittsburgh, Houston, New Orleans, Atlanta

For more facts, use Reader-Reply Card opposite page 18 and circle No. 287

spur line, and asphalt shipped by rail from the nearby Phillips refinery was unloaded by a Roper pump and transferred via an overhead line to a battery of horizontal insulated steel tanks capable of storing up to 80,000 gallons of material.

Aggregates

Sand and small-size aggregate were trucked from two commercial plants in the area by material-supply contractors. Large aggregate was produced from a pit-run raw supply about a mile from the company yard. The all-Pioneer crushing and screening plant in this alluvial deposit has been producing aggregate commercially for about ten years. This aggregate, hauled to the hot-plant by a fleet of International dump trucks, was piled, then pushed to the primary feeder trap by a Caterpillar D8 with dozer.



Final rolling of one of the runways near the main administration building is done by a Buffalo-Springfield three-axle tandem roller. The machine is ballasted to an over-all weight of about fourteen tons.

The 4,000-pound batch plant was turning out two tons of material every 30 seconds when CONTRACTORS AND ENGINEERS was on the job, and the hot-mix was transported from the plant to the airport by 14 International L-190 trucks.

Laydown crews move fast

High-production paving was made relatively easy for the contractor, since it was possible to close down large sections of the field at one time while paving was in progress. Aircraft using the field were able to land and take off on the new 8,300-foot instrument runway, completed last year, while the overlay was being put down. Even when parking ramps were paved, sizable areas were roped off for work at one time.

A combination of methods was used to get a high tonnage laid as quickly as possible in low areas. A pair of Barber-Greene finishers put down the overlay after material dumped by trucks had been spread to rough lines by motor graders. Following this, the Barber-Greenes took over to lay the remaining base-course material and surface courses.

CAA specifications for the sequence of lane construction—just the opposite of highway work—had paving start at the center line of a runway or taxiway and move outward toward the edges. Once the Barber-Greene finishers had been adjusted for paving thickness, and the lane widths had been juggled to fit the altering characteristics of the laydown machines as well as the width of over-all paving, the method worked well.

Daily temperatures of 50 and 60 degrees during the early part of the job made the asphalt paving stiffen quickly, so that rolling had to be done quite close to the laydown machines. A Buffalo-Springfield two-wheel steel roller, ballasted to about ten tons, was used for the initial knockdown roll on lanes being put down by both finishers. Final compaction was done by a Buffalo-Springfield three-axle tandem machine, ballasted to an over-all weight of about fourteen tons.

The big paving job gave plenty of work to the contractor's International-mounted Littleford Spray Master pressure distributor, which was used both before and after asphalt paving was done. The rig applied 2/10 gallon of MC-1 per square yard as a tack coat, and when paving was done, it applied the seal coat. Following this, an application of ½-inch-minus chips completed this portion of the job.

Personnel

General supervision of the engineering and design of the job was under the direction of R. W. McLeese, city engineer of Salt Lake City, who was assisted by H. F. Butcher, project engineer. For the contractor, Lee Bryner was area construction superintendent, Joe Young was project superintendent, and Bud Bowman was general foreman.

THE END



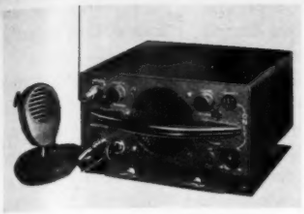
New HOMELITE Pump
Whispers While It Works

Goodby residential complaints! Here's a new lightweight gasoline engine driven pump that takes it easy on the neighbors' ears. Yet handles any water problem . . . from seepage to volumn pumping! The new Homelite Model 36 S2 2" self priming centrifugal Pump operates at slow speed with low noise level yet has high capacity of 9000 gallons per hour. It weighs only 85 pounds and can be easily carried by one man to the best pumping location. Starts quickly, primes automatically, gives long, dependable and trouble-free service under the toughest conditions. Ask your Homelite Representative for a free demonstration. You'll find a good neighbor policy in every pump.

Manufacturers of Homelite Carryable Pumps • Generators Blowers • Chain Saws

PERFORMANCE · DEPENDABILITY · SERVICE
HOMELITE CORPORATION
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5910 RIVERDALE AVENUE • PORT CHESTER, N. Y.

Canadian Distributors: Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Ottawa
For more facts, use Reader-Reply Card opposite page 18 and circle No. 288



The versatile Model J Pak-Fone may be used as a base station or as a portable unit.

Versatile two-way radio

■ A compact two-way radio which operates from 6, 12, and 24-volt dc or 115-volt ac sources without a separate power supply has been announced by Industrial Radio Corp., 428 N. Parkside Ave., Chicago 44, Ill.

The Model J Pak-Fone may be used in vehicles and other mobile equipment as a base station. When operated with a 12-volt aircraft-type storage battery, it becomes a portable unit.

The unit measures only 10 inches wide by 9 inches deep by 5 inches high. Quickly mounted in any position, it can be transferred from vehicle to vehicle in two minutes, so that one radio can serve several purposes. Constructed of heavily reinforced steel, the unit's case is weatherproofed for outdoor use.

The loud speaker and power supply are built in. Microphone, antenna and mounting frame are standard equipment.

Frequency modulation and a relay-type squelch circuit provide clear noise-free telephone communications. A total of 25 tubes and crystal-controlled stability contribute to the performance of the equipment.

As current requirements are very small, approximately 1 ampere at 12 volts as compared to conventional drains of 5 to 10 amperes, no changes or additions to ordinary vehicle electrical systems are necessary. Model J Pak-Fones carry FCC and Civil Defense designations. They operate in 25 to 50 and 145 to 174 MC bands.

For further information write to the company, or use the Request Card at page 18. Circle No. 2.

I-H division news

Ralph H. Lewis has joined the staff of Aubrey, Finlay, Marley & Hodgson, Inc., Chicago, Ill., to handle publicity for the Industrial Power Division of International Harvester Co., Chicago. Formerly he was with Athey Products Corp. and Caterpillar Tractor Co.

Portable power sprayer

■ A 12-gallon power sprayer offered by D. B. Smith & Co., Main St., Utica 2, N. Y., delivers up to 1½ gpm. Powered by a ¾-hp 4-cycle engine, the unit operates at pressures up to 150 psi. An easily regulated spray gun is adjusted for a spray pattern varying from a fine mist to a small, long stream.

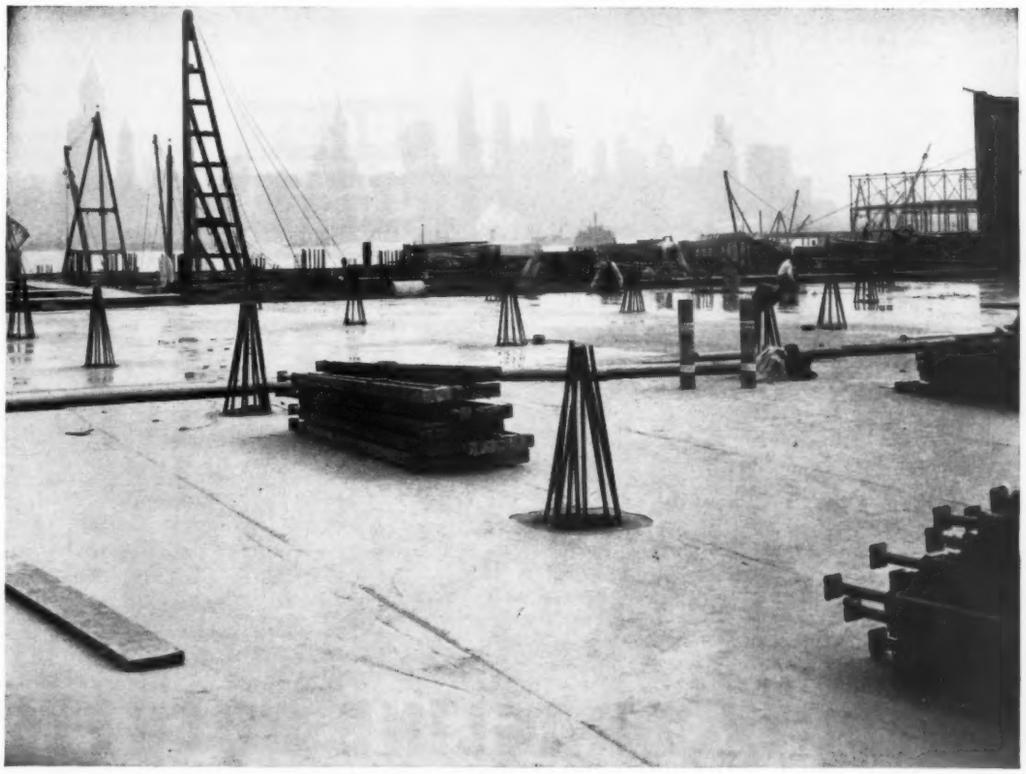
The pump features a semisteel cast body with a brass cylinder and steel piston.

A mechanical agitator with double blade surrounds and cleans the strainer at each stroke of the pump. The sprayer is mounted on 14-inch-diameter semipneumatic rubber tires.

For further information write to the company, or use the Request Card at page 18. Circle No. 4.



The Smith power sprayer, features pump seals designed to withstand all types of spray material, including silicone products.



For Low Cost Concrete Protection and Curing . . .

SISALKRAFT!

Reenforced Waterproof Paper

Because it helps produce better concrete, waterproof Sisalkraft helps you build better buildings. Because it protects concrete from "traffic damage" and debris, scuff-proof Sisalkraft assures a better job. Light in weight and easy to handle, it rolls in place easily and can be removed just as easily with minimum cleanup. It performs all the jobs of protection and curing at one low material and labor cost.

Available in rolls 3 to 13½ feet wide and blankets any width up to 26½ feet. Write for samples, application information and nearest source of supply.

American SISALKRAFT Corporation
Dept. CE-10, Attleboro, Mass.

SISALKRAFT PRODUCTS

Please send Sisalkraft samples, application information and nearest source of supply.

Name .....
Company .....
Address .....
City ..... Zone ..... State .....

Chicago 6, Illinois • New York 17, N. Y. • San Francisco 5, California

For more facts, use Reader-Reply Card opposite page 18 and circle No. 290

Timberk DECALS for TRUCK DOORS

COASTAL LINE CONSTRUCTION CO. INC. ELECTRICAL CONTRACTORS

FORSTGREN BROTHERS GENERAL CONTRACTORS

LESS THAN ½ PER SQ. FT.

✓ FINEST QUALITY
✓ PERSONALIZED DESIGN
✓ 10 DAY DELIVERY

FOR SKETCHES and SAMPLES WRITE TO...

STORER DECAL CO.
1558 SO. MARKET
WICHITA, KANSAS

For more facts, circle No. 289

Wagon with 16 cubic yards heaped capacity teams with Cat DW15 for hauling, dumping



The RD15 Movall is a new rear-dump wagon with a heaped capacity of 16 cubic yards. ►

■ A new multipurpose Movall wagon for use with Caterpillar DW15 tractors is announced by C & D Mfg. Co. The new model has a heaped capacity of 16 cubic yards (12 cubic yards struck) and a carrying capacity of 44,000 pounds.

Known as the RD15 Movall, the new wagon is reported to have the same features as the larger 25-yard model. These include positive cable-controlled ejection which enables the wagon to handle any material that can be top-loaded—dirt, mud, ore, aggregate, or surfacing materials.

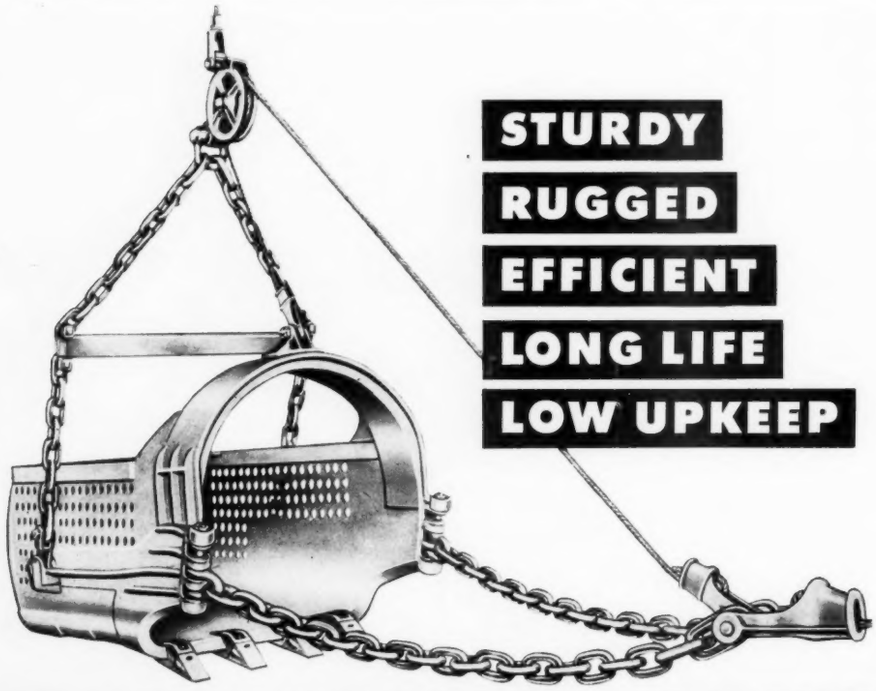
Other features are controlled spreading or dumping action, rugged steel construction, a large loading area (10 × 16 feet), a turning width of 27 feet, and a dumping time of 11 seconds.

According to the manufacturer, the rear dumping principle provides maximum safety when the wagon is dumping over the edge of a fill. The load is dumped with all brakes locked, without raising the body, and with the drive wheels well away from the edge. In addition, the low center of gravity permits dumping at any travel speed.

Standard Caterpillar No. 27 cable controls are used with the Movall, thus making possible a quick change-over from scraper units. Optional equipment includes ejector sideboards for greater capacity with light materials, and a detachable rock guard.

The new wagon is designed for use with DW15 tractors now in the field, or with new prime mover units. Under favorable job conditions, it can also be used with Cat DW10 tractors.

For further information write to C & D Mfg. Co., Folsom Blvd., Perkins, Calif., or use the Request Card that is bound in at page 18. Circle No. 71.



STURDY
RUGGED
EFFICIENT
LONG LIFE
LOW UPKEEP

HENDRIX DRAGLINE BUCKETS

✓ LESS BUCKET WEIGHT, type for type.
✓ FULL PAYLOAD EVERY TRIP, even in wet digging.
✓ ALL-WELDED CONSTRUCTION for greater strength and durability.
✓ 14% MANGANESE STEEL chains, fittings and reversible tooth points.
✓ PERFECT BALANCE: handle easier, fill faster, dump cleaner.

Years of engineering skill and know-how have gone into the design of Hendrix Dragline Buckets . . . and to assure long, efficient service with lowest possible maintenance, only highest quality materials are used under rigid manufacturing standards.

Yes, The Hendrix Bucket you buy today has the built-in stamina to provide long-life profitable operation day after day . . . job after job!

A TYPE FOR EVERY DIGGING PURPOSE

¼ to 40 Cubic Yards

All Hendrix Buckets available without perforations

Hendrix Lightweight Dragline Buckets

HENDRIX MANUFACTURING CO., Inc.
MANSFIELD, LOUISIANA

For more facts, use Reader-Reply Card opposite page 18 and circle No. 291

Horizontal auger drills

■ Horizontal truck-mounted and self-propelled auger drills for earth and rock boring are described and illustrated in a bulletin published by The Salem Tool Co., S. Ellsworth Ave., Salem, Ohio. The folder includes photographs showing the machines at work on various types of drilling.

Powered by gasoline engine, diesel, or electric motor, the McCarthy horizontal drills bore up to 12-inch-diameter holes to depths of 150 feet in earth formations. Drilling height ranges from 4½ to 7 feet, and drilling speed ranges from practically zero to 6 feet per minute. Crosswise or lengthwise truck mountings, individually operated leveling jacks, heavy-duty main frame, and truck-type transmission are versatile features.

Both the Model 103 truck-mounted drill and the Model 104 self-propelled unit are described, together with head and augers available for use with these models.

To obtain Bulletin M-105 write to the company, or use the Request Card that is bound in at page 18. Circle No. 10.

Organizational change made by Fluor Corp.

The first of next month, engineering and construction operations of The Fluor Corp., Ltd., Los Angeles, Calif., will be combined into one division with M. A. Ellsworth as the vice president and general manager. Mr. Ellsworth joined Fluor's sales staff at Tulsa, Okla., in 1940. Two years later he became a sales engineer, and in 1944 he was made Tulsa district manager.

Reporting to Mr. Ellsworth will be vice presidents of various operations: J. G. Marshall, general engineering; Ernest Moncrief, mid-continent division; Lee Van Horn, process engineering and development; W. P. Downey, construction; and J. P. Kneubuhl, engineering and construction sales.



The Luber-finer Model 272-C oil filter for small capacity engines.

Oil-filtering unit for small engines

■ An oil-filter unit designed for use with engines having up to 3-gallon crankcase capacity has been added to the line of filter units manufactured by Luber-finer, Inc., 2514 S. Grand Ave., Los Angeles 7, Calif.

The new Model 272-C, while said to incorporate both the rugged construction and patented filtering qualities of the larger Luber-finer units, is smaller, lighter, and easier to mount in limited space. It features single-bolt closure, simplified pack replacement, and a positive-sealing O-ring-type gasket that assures leak-proof lid closure.

According to the manufacturer an outstanding feature of the Model 272-C is the screw-in type Luber-finer pack, which assures a positive pack seal and eliminates the possibility of oil by-passing the pack.

Other models in the Luber-finer line include the 500-C for engines with up to 5-gallon crankcase capacity and the 750-C for engines with up to 8-gallon capacity.

For further information write to the company, or use the Request Card at page 18. Circle No. 58.

Hardfacing electrodes

■ The wide variety of welding accessories and supplies available from Victor Equipment Co., 844 Folsom St., San Francisco 7, Calif., is described in a catalog available on request.

The booklet includes application information on Victor's complete hardfacing-electrode line made for gas, manual or automatic arc use.

Also shown are welding machines, acetylene generators, air compressors, pipe-cutting machines, and other Victor equipment.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 33.

GM division appoints

Sheldon G. Little has been assigned to the post of assistant chief engineer of the GMC Truck and Coach Division, General Motors Corp., Pontiac, Mich. With General Motors since 1929, Mr. Little was formerly engineer for the GM styling section.

Torque-converter units

■ Torque-converter combinations designed and manufactured to order for specific applications are available from Long Mfg. Div., Borg-Warner Corp., 12501 De Quindre St., Detroit 12, Mich. These drive combinations can be made for such equipment as tractors, excavators, and many other types of earthmovers.

Borg-Warner products from which such drive units may be made include, in addition to torque converters, power shift and automatic transmissions, industrial and automatic clutches, power takeoffs, and speed reducers. Any of these may be adapted to meet specific requirements.

Literature describing this service illustrates various available combinations, and includes, also, a selection chart that will aid in determining which size of torque converter is best suited for a given application. In addition, an account of the operating features of Borg-Warner torque converters provides a clear analysis of the advantages these power components offer.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 73.

L. B. Foster sales news

Sales of sheet steel piling, pipe piling, steel pipe, and rail and track accessories are being handled in the southeastern states for L. B. Foster Co., Pittsburgh, Pa., by Erskine Fraser. The new representative on the Atlanta, Ga., office sales staff is a former bridge engineer with the Georgia State Highway Department.

LIFT OBJECTS QUICKLY— SAFELY... ANY SHAPE OR SIZE!

with DOWNS SAFETY GRABS for Cranes and Hoists



PILE BAND PULLER

Now you can tailor your lifting equipment to "fit" any shape or size materials to be moved with Downs Safety Grabs. No matter what your hoists are handling — pipe, rails, drums, plate or structural steel, stone, timber, boxes or odd-shaped objects of any size — there's a Downs Safety Grab designed for the job.



RIPPING HOOK

Downs Safety Grabs give you faster, easier lifting . . . and they're safety-engineered to provide a wider safety factor than listed capacity ratings. They can't let go until you release the load — real protection for workers that improves morale.



BEAM TONGS

Write for FREE illustrated catalog 2008-B for complete information on every model — today!



PILE POINT & BAND

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"THE GRIP that NEVER GIVES"

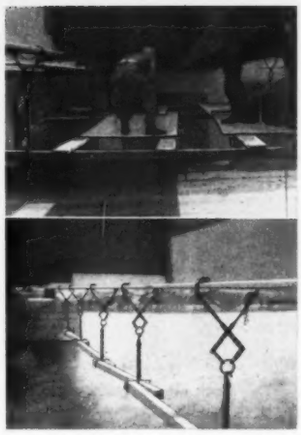
DOWNS

DOWNS CRANE & HOIST CO.

MECHANICAL ENGINEERS

540 W. VERNON AVE. • LOS ANGELES 37, CALIF.

For more facts, circle No. 292



Swing-Lo Suspended Scaffold

Most Practical Scaffold for Any Job on Rolled Beam Bridges, By-Passes

Easily assembled clap-on suspension scaffolding that is horizontal with the beam for working overhead. Fully adjustable for 10" to 20" I-beam flanges; moves along the beams. Light in weight; interchangeable parts; adjustable for height. SAFE! Weight up to 2000 lbs. can safely be carried.

Upper photo shows position for construction of bridge decking; Swing-Lo permits greater accessibility, efficiency.

Lower photo illustrates application of Swing-Lo and needle beams, pushed out from shore, in working position over water.

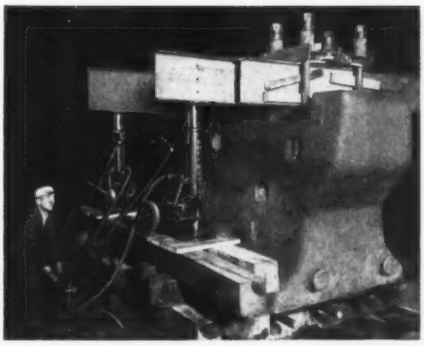
Swing-Lo Suspended Scaffold Co., Covert, Michigan.

Pat. Pending

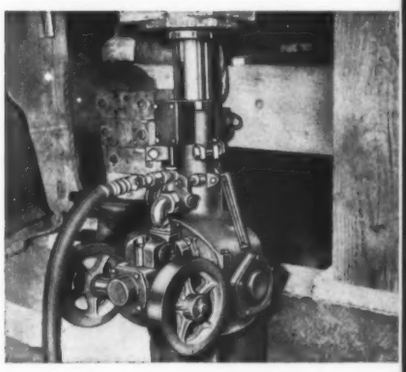


For more facts, use Reader-Reply Card opposite page 18 and circle No. 293

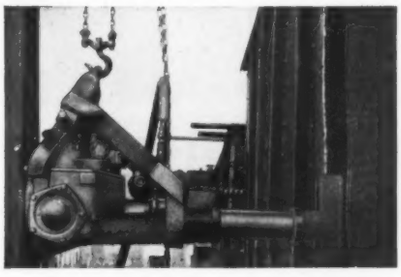
How to put air to work on heavy jobs!



One man can lift hundreds of tons in minutes with the touch of his fingers when he has a pair of Duff-Norton air motor power screw jacks at his command. Two jacks can be operated simultaneously from one Y-valve connection. Jacks can be operated from same air system used for other pneumatic tools (70-200 psi).



Sinking piling under structures and other hard-to-get-at places where standard pile driving equipment cannot operate is another example of the versatility of these powerful jacks. Since air is used only to operate motor, jacks can't lower or creep under the load in event of air failure for any reason.



Straightening trucks, tanks, freight cars, heavy bins, hoppers, raising and positioning bridges, pushing large diameter culvert pipe through solid earth or fill are other everyday uses for the 6 models ranging in size from 20 to 100-ton capacities. *Mail the coupon today for bulletin AD-11-S giving complete specifications.*

DUFF-NORTON *Jacks*

Duff-Norton Company

P. O. Box 1889, Pittsburgh 30, Pa.

Please send complete details on air motor power screw jacks to:

Name _____ Title _____

Company _____ Phone _____

Address _____

For more facts, use Reader-Reply Card opposite page 18 and circle No. 294

Heavy-duty truck chassis for 8-yard dump body

■ For heavy dumper work—up to 8 yards struck capacity—a new Mack truck rate at 46,000 gvw and available in both gasoline-powered and diesel-powered models, has been introduced. The new unit is offered with a 158½-inch wheelbase, adapted to 10 or 11-foot dump bodies. Standard tires are 11.00×24, 14-ply, single front and dual rear, on 8.5 rims.

For the B-60X gasoline-powered models, Mack's 185-hp Thermodyne EN-464A engine is supplied, with a choice of the standard five-speed direct-in-fifth transmission, or a nine-speed Duplex overgeared wide-range type. The B-61X diesel-powered model uses the Mack Thermodyne END-673 diesel rated at 170 horsepower, with a choice of a five-speed direct-in-fifth standard or Duplex wide-range nine-speed overgeared transmission.



The Mack Model B-60X chassis, powered by a 185-hp gasoline engine, is especially adapted to dumper and transit-mixer service.

Rear axles in both models are massive dual-reduction units, equipped with radius rods and torque arms. Service brakes are air-actuated, with a total area of 710 square inches. Rear drums are 17¼×6 inches. The hand brake is of the internal-expanding type.

Frames are of pressed chrome-manganese steel, heat-treated, in double channel form. They are braced with channel cross-members with wrap-around broadly-spread gussets.

Said to be especially adapted to the rigors of dump-truck work, the cab and the entire front-end sheet metal assembly is unitized as a single independent structure, supported from the frame by rubber supports in diamond formation. This, the manufacturer claims, not only renders the truck immune to frame flexures in traversing uneven ground, but eliminates weaving or fight between the cab, hood, radiator, and fenders.

Driver comfort, control convenience, and road vision are afforded by the welded-steel cab, which features a fully adjustable driver's seat. Instruments are grouped on a pull-out panel for easy access, and all fuses are grouped on a panel exposed when the glove-compartment is opened.

For further information write to Mack Truck, Inc., 350 Fifth Ave., New York 1, N. Y., or use the Request Card at page 18. Circle No. 82.

Golden jubilee for Rogers

Rogers Brothers Corp., Albion, Pa., celebrated its 50th anniversary with an open house at the plant, followed by a banquet at the Kahkwa Club in Erie, Pa. The company pioneered the development of low-bed heavy-duty trailers.

Designed for
PROTECTION



Styles illustrated
50-20 Jacket
51-05 Pants
53-15 Hat

BUILT FOR WEAR

Sawyer's "FROG" ® BRAND
CLOTHING
can take it!

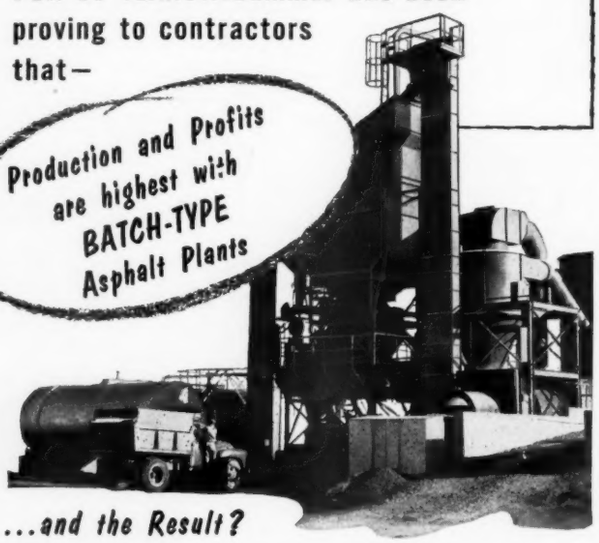
Tough — wears like iron, takes endless snagging, scraping, chafing and still gives full protection.
Rotproof — not affected by oils or chemicals — will not blister, crack or peel.
Waterproof — made with top quality base fabric, first saturation-coated, then coated on the inside as well as on the outside with specially blended Neoprene Latex.

Many styles — in black, yellow or Hunter's green
Write for catalog

THE H. M. SAWYER & SON CO.
Cambridge, Mass.
For more facts, circle No. 295

FOR 60 YEARS...Cummer has been proving to contractors that—

Production and Profits are highest with BATCH-TYPE Asphalt Plants



...and the Result?

Batch-Type Asphalt Plants...the only type ever made by Cummer ...are now accepted as the Standard of the Industry

You hear more and more about batch-type asphalt plants. The reason is that with batch-type plants an established regulated mix can be perfectly controlled throughout the production run. Only by this method can you be sure of complying with the most rigid specifications with no variations from the beginning to the end of the run.

This is very gratifying to The F. D. Cummer & Son Company, pioneer designers and builders of batch-type asphalt plants like the one shown above, owned by Dolomite Co., Rochester, New York. This is a stationary plant with a guaranteed minimum capacity of 100 tons per hour. For three generations batch-type plants have been the only kind made by Cummer.

Contractors profit by Cummer's exclusive concentration on batch-type plants. They make possible reliable, dependable service. Customers know that asphalt produced in Cummer plants will be delivered "as ordered." And Cummer plants have longer lives and exceptional resale value because batch-type plants do not become obsolete.

Send for your copy today of the new, fully-illustrated catalog with complete specifications on all models of plants, equipment and accessories.

CUMMER
THE F. D. CUMMER & SON CO.
1827 EAST 18th ST. • CLEVELAND 14, OHIO
For more facts, use Reader-Reply Card opposite page 18 and circle No. 296



Cables in concrete "I" beam are stressed to pre-determined tension by 60-ton Simplex "Jenny" Hydraulic Puller equipped with pressure indicating gauge.

Hydraulic Puller Prestresses Concrete Faster, Safer, Easier

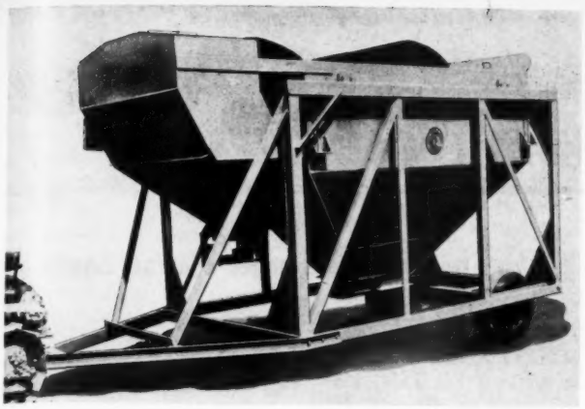
"Center-Hole" pulling, an exclusive feature in Simplex Pullers, has simplified prestressing jobs, according to concrete construction men. The "Center-Hole" construction of the Puller, they explain, permits tensioning cables or rods to be drawn through the center of the tubular ram. This eliminates torque, dangerous off-center pressures and complicated back-up devices—actually makes pulling 75% easier. The Simplex "Jenny," illustrated above, is a self-contained unit which serves as its own back-up or can be used with a simple chair, reducing set-up time. Simplex "Center-Hole" Pullers are available in capacities from 30 to 100-tons and in self-contained or remote controlled units. They may also be used as powerful hydraulic jacks and presses as well as pullers.



SIMPLEX "RE-MO-TROL"—Remote-Controlled Unit has ram connected to hydraulic pump by high pressure hose for safe, convenient use in tight spots and dangerous locations. A pressure gauge may be installed for checking tensioning pressure.

FREE BULLETIN SHOWS HOW
Illustrates application of all models of Simplex Hydraulic "Jenny" and "Re-Mo-Trol" Pullers for prestressing concrete and for other construction uses. Write for copy of Hydraulic 53.

WORLD'S LARGEST MFGRS. OF INDUSTRIAL MECHANICAL AND HYDRAULIC JACKS
SIMPLEX
RE-MO-TROL UTIL-A-TOOL JACKS JENNY ROL-TOS
TEMPLETON, KENLY & CO. 2911 Gardner Road. Broadview, Illinois
For more facts, circle No. 297



Transportation wheels and hitch permit the Conveyex batching bin to be towed.

Portable batching unit shortens concrete hauls

■ A new portable batcher announced by Construction Machinery Sales Co. is recommended both as an efficient and accurate batching unit for small ready-mix concrete jobs and as a handy auxiliary unit for large-scale projects where long hauls are a factor.

The Conveyex batching unit is available with two or three compartments. Easily charged with a front-end loader, the unit batches each aggregate separately onto a troughing belt for charging truck mixers. The scale is of the decumulative type which comes back into balance as the indicated amount is discharged from each compartment.

The new unit is offered with a separate 50-cubic-foot cement compartment and scale beam. Recommended especially for use with bulk cement, it may also be used with bag cement. Total capacity of both the two and three-compartment models is 10 cubic yards.

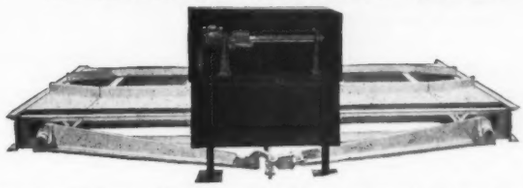
Mounted on two rubber-tired wheels, the Conveyex may be equipped with a hitch for towing. A dust cover for the conveyor is available.

For further information write to the Construction Machinery Sales Co., 447 Vinton St., Waterloo, Iowa, or use the Request Card at page 18. Circle No. 62.

Remember the Blood Bank Today!

A $5 or $10 food package sent for the assistance of a Korean orphan will make you feel good too. Address CARE, 600 First Ave., New York, N. Y.

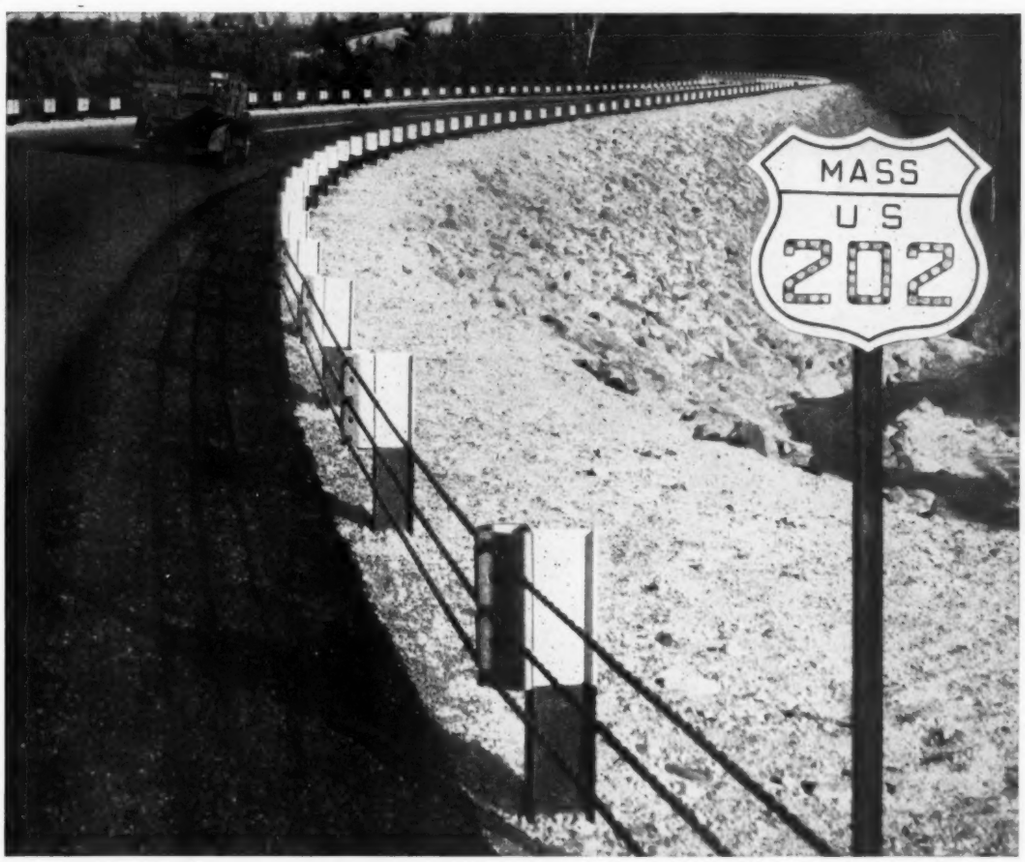
WINSLOW—PORTABLE TRUCK SCALE
"THE CONTRACTORS' SPECIAL SCALE"



For use at temporary and permanent locations—at stock piles and by bituminous material contractors at the job site. Capacities: 15-18-20-30 tons.
Write us for name of your nearest distributor.

WINSLOW SCALE COMPANY
P. O. Box 1198 Terre Haute, Indiana

For more facts, use Reader-Reply Card opposite page 18 and circle No. 299



Extra Protection at Danger Points with Bethlehem Cable Guard Rail

You can be sure of dependable protection for motorists when you install Bethlehem Cable Guard Rail at danger points along highways.

Used at sharp turns, embankments, bridge approaches and other hazardous spots, Bethlehem Cable Guard Rail forms a strong, effective barrier, possessing high resiliency and impact-absorbing qualities.

This wire cable guard, with its special bumper-type bracket, is of simple design, easy to install, and of low initial cost. It requires little maintenance, is adaptable for use with steel, wood or concrete posts, and is furnished to comply with any state regulations. Bethlehem Cable Guard Rail comes with 2, 3 or 4 cables, with 1, 1¼ or 1½-in. anchor rods.

Bethlehem furnishes cable guard rail, steel posts, brackets, cable ends, anchor rods, cable splicers and fittings, all of which assemble readily and easily on the job. In addition, Bethlehem makes Safety-Beam Guard Rail, a solid-beam-type guard rail.

If you would like to have additional information about Bethlehem Guard Rails—as well as other Bethlehem products used in the construction of highways—just call the nearest Bethlehem sales office, or write to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

For more facts, use Reader-Reply Card opposite page 18 and circle No. 300

DUDGEON HYDRAULIC JACKS

SALES RENTALS

CAPACITY TO 600 TONS

FOR:
PILE TESTING
UNDER-PINNING
BRIDGES
PIPE PUSHING
SOIL TESTING



RICHARD DUDGEON INC. EST. 1850
789 BERGEN STREET BROOKLYN, N. Y.
• ST 9-4040 •

For more facts, circle No. 296

Konkure Concrete Curing Compounds

For twenty years never a City, County, State or Federal test failure . . . *There must be a reason!!*

YOU PAY NO MORE FOR THE FINEST OF CONCRETE CURING COMPOUNDS

★ *KONKURE NOW OFFERS:*

- Clear—Black-Gray and White Pigmented-Resin Tilt-Up . . . Specified in Original Bureau of Reclamation Specifications.
- Concrete Sawing, Joint Filling and Curing Application for Airports, Highways, Commercial, Engineering Projects.
- Specify KONKURE . . . Specify the Cadillac of Concrete Curing Compounds.

★ *OTHER KONKURE PRODUCTS . . .*

- KONSET . . . A Hardener and Stabilizer for Topping and Bonding Old Concrete to New.
- KOLORBLEN . . . Concrete Coloring . . . A Variety of Colors.
- SERVICISED EXPANSION BOARD . . . Full or Cut.
- RUBBER WATER STOPS . . . PARA-PLASTIC Joint Sealer, Regular and Para-Plastic JFR.
- Western States Distributor for Block Mesh.

WRITE TODAY FOR FULL INFORMATION

DEALER INQUIRIES INVITED

KONKURE COMPANY

Concrete Curing and Application

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For more facts, use Reader-Reply Card opposite page 18 and circle No. 301

AVOID LEGAL PITFALLS

Third parties' rights under contract bonds

THE PROBLEM: *A subcontractor gave bond to the prime contractor to furnish materials. The work involved public construction, and so material men would have no lien against the property. Did the bond give material men a right to sue the surety for their unpaid claims?*

THE ANSWER: Yes. (Anchorage Sand & Gravel Co. v. Alaska Dock & Bridge Builders, Inc., 119 Fed. Supp. 943, decided by the United States District Court, District of Alaska.)

The decision was influenced by circumstances which indicated that the parties and the sureties intended that the bond should afford the material men security, in view of the fact that the property would not be subject to a statutory material man's lien. But the court refused to consider evidence tending to show that an agent for the surety company, whose authority was limited to securing signing of the bond, had interpreted the bond as protecting material men.

Applying this to federal construction contracts, the court noted that a material man does not necessarily become entitled to sue on a bond binding a contractor or subcontractor to "furnish" materials, where there is no explicit requirement that he pay for them.

(Since the decision is that of a trial court, it is subject to review by the United States Court of Appeals, if an appeal be taken.)

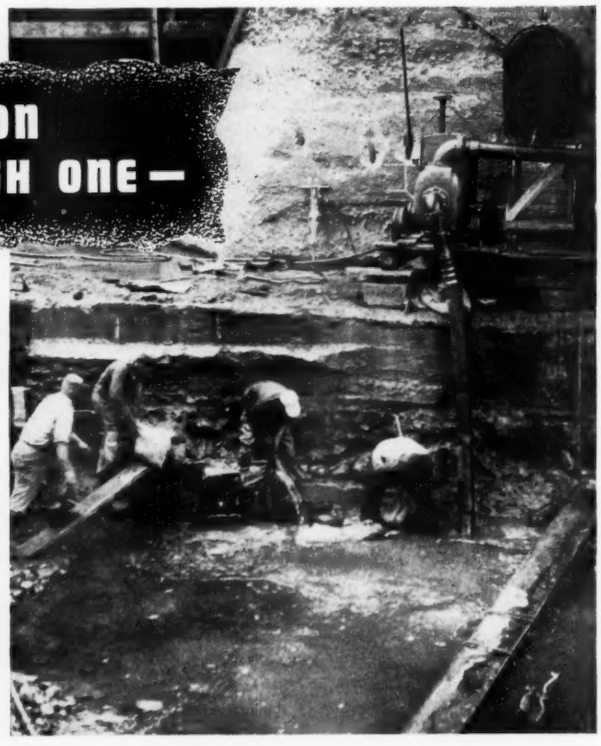
The opinion is chiefly important because of references made to decisions bearing on the subject and rendered by the Federal Court of Appeals for various circuits.

In a case that arose in South Dakota, a contract covering a school dormitory required the contractor to give a bond for the benefit of laborers and material men. The bond given did not require payment of material claims, but merely obligated the contractor to furnish materials. It was decided that the bond could not be sued upon by material men. The United States Circuit Court of Appeals, Eighth Circuit, said that it was "unfortunate for the material men," but that the courts could not by interpretation make a contract for the parties that they had not made for themselves. (Babcock & Wilcox v. American Surety Co. of New York, 236 Fed. 340.) A decision to the same effect was rendered by the Court of Appeals, Fifth Circuit, in a Georgia

BARNES AGAIN ON ANOTHER TOUGH ONE—



BARNES 90M's used on repairs to Movable Dam No. 5 and Lock No. 9 Erie Barge Canal.



On jobs that depend on moving plenty of water fast, it's Barnes First! Intrusion Prepakt, Inc., of Cleveland, tackled a real "toughie" when it contracted to make permanent repairs to Movable Dam No. 5 and Lock No. 9 at Rotterdam Junction, N. Y.

Working areas in the coffer dams had to be dewatered at top speed! Here again, Barnes Pumps delivered peak performance — 24 hours a day, a terrific responsibility — and Barnes Pumps did a terrific job! That's why the Contractors who handle the tough ones call on Barnes for dependability and performance under the most adverse conditions.

On the really tough ones, where performance is a "MUST" — play it safe and call for Barnes Pumps. See your distributor or write Barnes about your problem. There's a Barnes Self-Priming Centrifugal Pump to solve it!

CONTRACTORS CALL FOR BARNES BIG 3

1 **33,000 for 1 Economy**
33,000 gallons of water pumped for one gallon of gasoline!

2 **Barnes Self-Priming**
Fast, dependable priming with as low as one-third normal water level in Pump body.

3 **On the Job Servicing**
Advanced, simplified design for quick easy servicing in the field.

FOUNDED 1895 Barnes MANUFACTURING CO. MANSFIELD, OHIO

BARNES MANUFACTURING CO.
Mansfield, Ohio Oakland 21, Calif.
Monterrey, Mexico
BUY THE BEST—BUY BARNES

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Slope Meters Mean *Efficiency Plus* on Your Tractors, Dozers & Graders

Slope Meter installed on your earthmoving equipment increases working efficiency by telling the operator, automatically, the exact crown or slope on which he is working. Slope Meters cut construction costs on highways, airports, dams, and building sites.

Order from your Equipment Distributor today or from THE SLOPE METER CO. EXCELSIOR, MINN.

For more facts, circle No. 303

Edited by A. L. H. STREET
Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.

case. (United States v. Montgomery Heating & Ventilating Co., 255 Fed. 683.)

In a New York case, the Court of Appeals for the Second Circuit, said that the mere fact that a contractor agreed to give a bond to pay labor claims, did not entitle a laborer to sue on a bond that did not call for such payment. (United States v. American Fence Construction Co., 15 Fed. 2d 450.)

In a North Carolina case, the Court of Appeals, Fourth Circuit, decided that under a contract requiring construction at the contractors' "own risk and expense," and under a bond given pursuant to the contract, the surety was not liable to labor and material men for payment of their claims. (United States v. Starr, 20 Fed. 2d 803.)

But another decision cited by the Alaska federal court (Cove Irrigation District v. American Surety Co. of New York, 42 Fed. 2d 957) shows that a contract and bond may be so worded as to permit a public agency to enforce a surety's liability for the benefit of subcontractors, material men, and laborers. That case involved construction of irrigation district improvements, and the contract provided, in effect, for payment of the price on the contractor "doing such work and furnishing materials and paying for the labor and materials." The bond was conditioned by the fact that the contractor would indemnify the district against loss, and "pay the accounts contracted for materials furnished and labor performed" under the contract.

It should be noted that in all of the cases cited excepting the last, the principal question was limited to the right of a labor or material claimant, as a third party, to sue in his own name on a contractor's or subcontractor's bond.

From the material man's standpoint, this discussion seems to suggest the wisdom of checking the coverage of a contractor's or subcontractor's bond before assuming that the material man is made the beneficiary of the bond in such sense as to have a right to enforce a claim directly against the surety.

Liability of contractor for defective structure

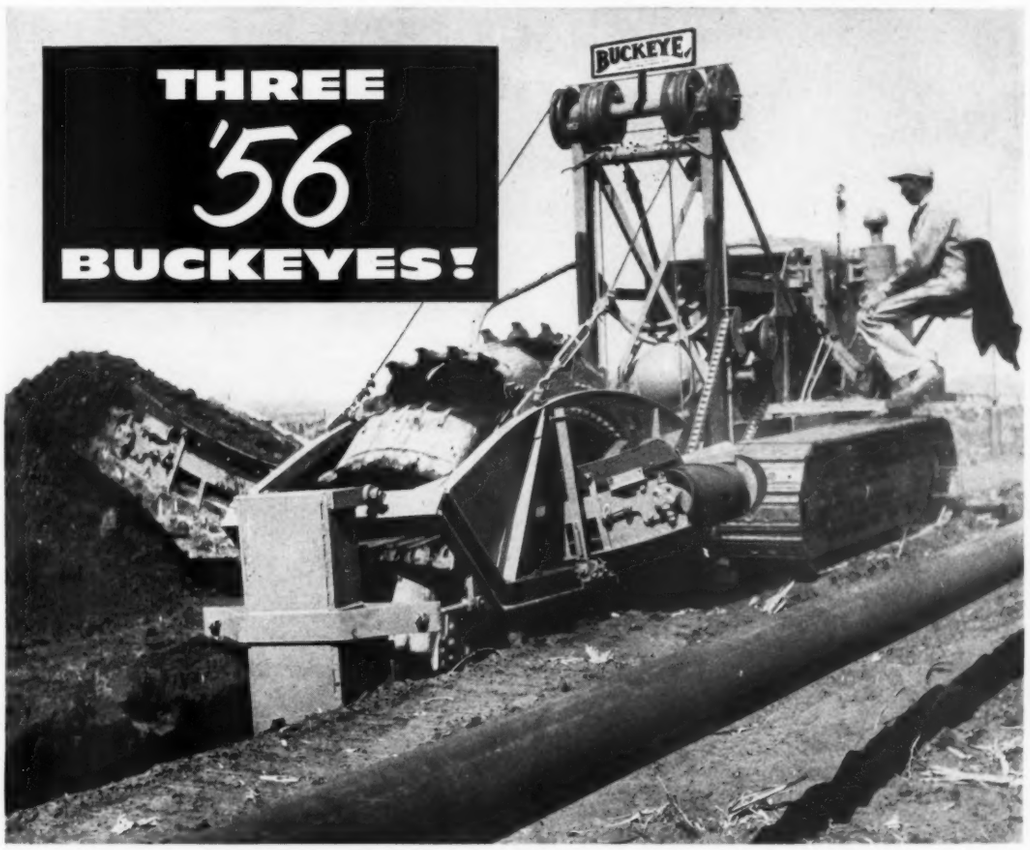
THE PROBLEM: *A steel company contracted to install a steel tank on a tower. The new tower would replace a wooden one of about half the capacity of the steel tank. About four months after installation, the tower collapsed. Was the company liable for the resulting damage since it had not vouched for the sufficiency of the tower?*

THE ANSWER: No. (Our Lady of Victory College & Academy v. Maxwell Steel Co., 278 S. W. 2d 321 de-

(*Concluded on next page*)



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...Alive with big features from Wheel Hoist to Crawlers

Buckeye's new "O" series now includes 3 models, the 305, 307 and 308 — each one with new, exclusive features for smooth, clean, low-cost ditching — each one built to outperform any machine in its class!

Live Hydraulic Wheel Hoist!
For faster, more accurate positioning of digging wheel independent of all other functions. Easily operated from the seat by simple, one-hand controls. Lets operator work faster, more profitably!

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Forward or reverse in 3 speeds to meet any conveyor need . . . Eliminates shock damage found when driven mechanically from digging wheel drive . . . Completely controllable from the seat.

Tractor Type Crawlers!
Allow variation in tread width and bearing areas thru a selection of pads specifically suited to any type digging . . . Idler rollers have face-type seals for long life . . . Strong, sturdy and reliable!

See the New "O" Series

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For more facts, circle No. 304

cided by the Texas Court of Civil Appeals, Fort Worth.)

The court said that the fact that the steel company knew more about the carrying capacity of towers than did the owner was immaterial. The owner should have protected itself by insisting upon a contract provision that would have required the steel company to assume responsibility for the sufficiency of the tower.

The court cited decisions of the United States Supreme Court and the appellate courts of Massachusetts, Maryland, Louisiana, Wisconsin, Virginia, and Illinois to the effect that "where a builder, who has been engaged to superadd to a structure already built, completes his work, as contracted, according to plans agreed upon, he is not responsible for the subsequent destruction of the building caused by its own inherent weakness."

Contractor not liable for defect in free work

THE PROBLEM: *A building contractor laid a paved sidewalk that was not called for by contract. Was he liable because the walk pitched toward the building instead of toward the street, causing rainwater to accumulate in the yard?*

THE ANSWER: No. (Picou v. McKinney Construction Co., 79 So. 2d 412, decided by the Louisiana Court of Appeals, New Orleans.)

In effect, the court said that the owner should not "look a gift horse in the mouth."

Contractor retains right to discharge employee

THE PROBLEM: *A contractor's masonry superintendent wrote plaintiff, saying that the contractor was ready to start brickwork on a building project, and stating the wage scale. The letter added that there was "approximately a year's work" on the job, and that other jobs would be coming up. In accepting the offer of employment, did the plaintiff become engaged for at least one year, thereby preventing his discharge within the year?*

THE ANSWER: No. The employment was one of indefinite duration and the employee could quit at will or be discharged at the will of the employer. (Gregory v. Mutual Construction Corp., 131 N. Y. Supp. 2d 608, decided by the New York Supreme Court, Appellate Division, Third Department.)

Comment: Any court would be apt to reach the same decision on the same state of facts, because, as stated by the New York court, it is a general rule of law that unless there is a definite period of service specified in a contract, the hiring is terminable any time by either party. But, by stating that there was "approximately a year's work", the superintendent came close to assuring the plaintiff employment for that period.

Worker's compensation for worker on foreign job

THE PROBLEM: *A core driller was hired by a contractor for foreign service. While on his way for processing in New York, to meet passport and security requirements, he was injured by a fall on an icy sidewalk. Was he entitled to federal workmen's compensation on a theory that he was injured in the course of his employment?*

THE ANSWER: Yes. (Phoenix Indemnity Co. v. Willard, 130 Fed. Supp. 657, decided by the United States District Court.)

Damage clause nullified

THE PROBLEM: *A subcontract required completion of work within 45 days and specified damages to be paid for delayed completion. A delay was caused by the general contractor, and there was no agreement for an extension of time for completion. Did that nullify the liquidated damage clause and allow the subcontractor a reasonable time after expiration of the 45 days in which to finish the job?*

THE ANSWER: Yes. (Melwin Construction Co. v. Stonewall Construction Co., 113 Atl. 2d 108, decided by the Municipal Court of Appeals, District of Columbia.)



THIS GMC W630-50 IS ONE OF A BIG TEAM that worked New Jersey's Garden State Parkway job. Its power to hustle an 8-yard transit mix comes from GMC's new 225-h.p. Blue Chip gasoline engine. Its extra-capacity axles are rated at 11,000 lbs. front—36,000 lbs. rear.

They keep you on top of fast-moving jobs

EVEN tough, clock-racing jobs like road-building are no problem to contractors using the new GMC Blue Chip tandems.

That's the kind of fast-moving work they're built for. They step along so smartly—swinging top-capacity loads—that you can figure on them for extra trips per day.

New high-torque engines do that. There's a choice of 6—short-stroke sixes, V8's and Diesels. And each one has a horsepower reserve that makes light of the heftiest hauls—pulls you through the roughest going *fast.*

Nine of Them are Hydra-Matic*

You can team this Blue Chip power with money-saving Hydra-Matic in 9 of the models. That's automatic protection against day-after-day punishment that murders ordinary trucks. Manual-shift versions now have big 2-plate 14-inch clutches.

That's the tip-off on their all-over ruggedness. There are massive new frames. *Full-length reinforcements,*** when necessary, are factory-installed. Axles—front and rear—are over-size. Wheels are of a rugged, new design. And Safety Power Steering** makes jockeying—even down in the pit—a snap.

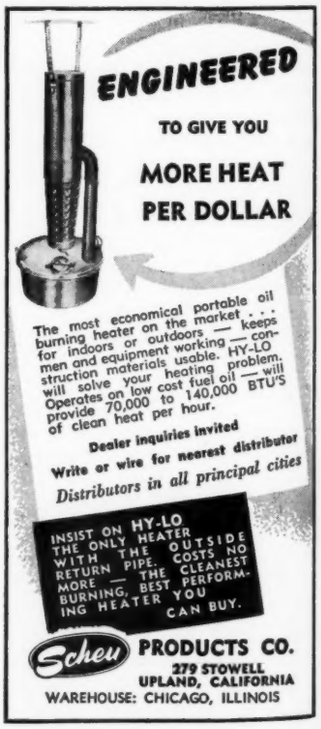
There are 19 of these GMC Blue Chip tandems in all—completely blanketing the 28,000 GVW-70,000 GCW range. Get a complete run-down at your GMC dealer's—now!

*Hydra-Matic standard on many models; optional at extra cost on some others
**Optional at extra cost

IN MOTOR TRANSPORT
GMC
LEADS THE WAY

GMC TRUCK & COACH
A General Motors Division

For more facts, use Reader-Reply Card opposite page 18 and circle No. 307



For more facts, circle No. 308

Metal-working machine is hand operated

■ A new manually-operated metal-working machine that will bend, punch, and shear flat and angle metal bars up to 3/16-inch thick and 2 inches wide in flat bars has been introduced by Diesel Power, Inc., P. O. Box 72, Greenville, Pa. According to the manufacturer, the new Weilands metal-working machine will increase the output of inexperienced labor and the efficiency of skilled craftsmen.

Exclusive of the handle, the Weilands machine stands 30 inches high. It is 6½ inches deep and 6 inches wide. Weighing 170 pounds, it can easily be mounted on a wall in the shop or attached to a frame or sidewall of a truck for mobile use. The pump-handle linkage produces a thrust of 250 pounds to the square inch, and simultaneously operates the bender, bar and angle bar shear, and punch mechanism. Dies of tool steel, in sets, come with the machine.

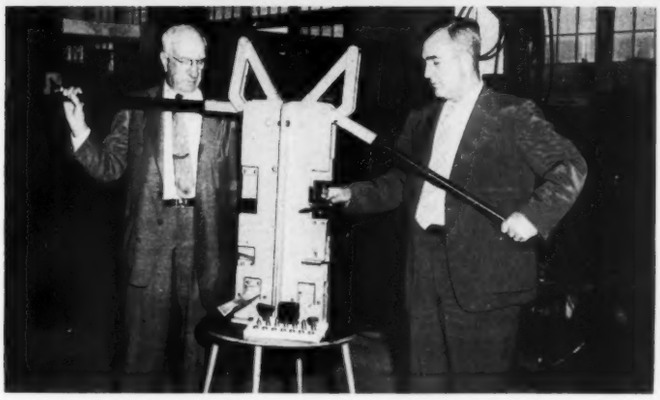
One of the features of the versatile new machine is the capacity to cut both ends of metal pieces absolutely square, with no distortion, fracturing, or knurling. Constructed of cold-rolled steel, the unit will handle aluminum, copper, brass, bronze and steel.

For further information write to the company, or use the Request Card at page 18. Circle No. 63.

B-L-H appointments

The new eastern district sales manager for Baldwin-Lima-Hamilton Corp., Philadelphia, Pa., is E. H. Schoonmaker. Formerly of the company's St. Louis office, Mr. Schoonmaker will make his headquarters in New York City.

W. A. McKnight will replace Mr. Schoonmaker as manager of the Baldwin sales office in St. Louis.



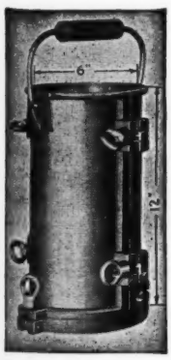
The new Weilands metal-working machine is shearing a piece of aluminum angle at left while it punches a ½-inch hole in a strip of ¼-inch steel bar stock.

Line of air-powered tools includes impact wrenches

■ Portable air tools made by Master Pneumatic Tool Co., Inc., Krick Road, Box 269, Bedford, Ohio, are illustrated in a catalog available on request. The products illustrated include assembly tools, percussion tools, and abrasive tools, as well as accessories.

Impact wrenches of ⅜, ⅝, and ¾-inch sizes are among the variety of assembly tools, which also includes drills, nut setters, and screw drivers. Chipping and scaling hammers and vertical and horizontal grinders are also shown.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18 of this issue. Circle No. 54.



To obtain specimens which show full strength compression tests, use MOLINE

CONCRETE TEST CYLINDER MOLDS

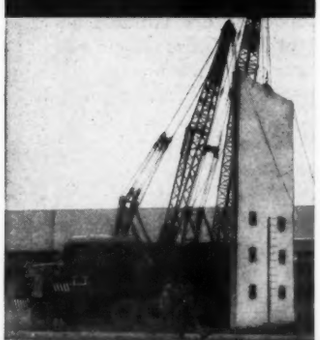
You can produce accurate test specimens to exact measurements with Moline Molds. They meet all ASTM requirements and are virtually indestructible—because they are made of refined malleable iron. Portable for laboratory or field work. Various sizes available including standard 6" x 12" Model A (illustrated). REMEMBER— A TEST IS ONLY AS GOOD AS THE SPECIMEN.

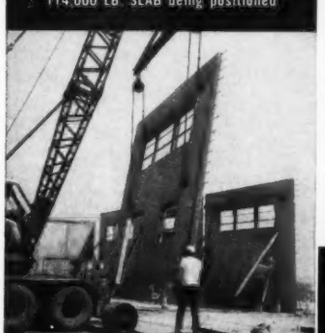
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Moline, Ill., U.S.A.
75 Years of Service

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PRECAST PANEL 32' high, 18½' wide with two large window areas.


TRUSS has 60' span at top


114,000 LB. SLAB being positioned


PANEL with door and two window areas

SUPERIOR
Complete Accessories Plus Experience on Tilt-Up Jobs!

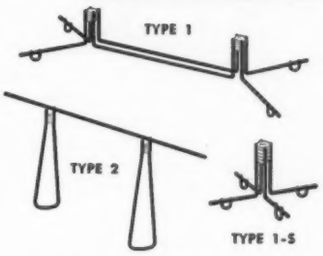
On every Tilt-Up job the proper type of Pick-Up Inserts and Brace Anchors as well as their location in the slab or precast structural member are of prime importance in order to withstand the stresses occurring when *tilting, lifting,* and *positioning.* As pioneers in this field, SUPERIOR has developed various types of accessories and correct procedures resulting from the experience of thousands of job applications.

SUPERIOR accessories are designed for fast and efficient handling of all types of precast panels and structural members. The Pick-Up Insert provides dependable anchorage for bolts which secure a lifting angle to which slings are attached when the panel is raised. Brace Anchors secure the temporary bolts by which the Braces are attached. The exclusive pivoting action of the adjustable Braces permits quick positioning and alignment of panels. Braces are assembled with 2 x 4's or pipe of lengths to fit job conditions.

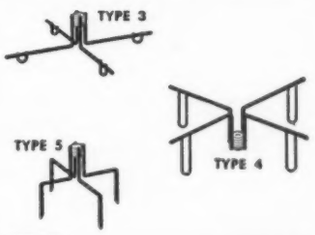
The many types of SUPERIOR Inserts, Anchors, and Braces for every job condition together with complete layout service provide a combination which offers safe and efficient handling of precast panels and structural members.

For further details refer to Sweet's Catalog or send for Bulletin TU-3.

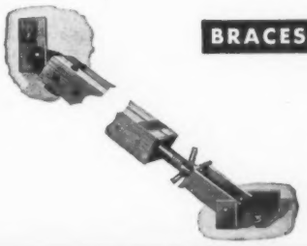
PICK-UP INSERTS



ANCHORS for BRACES



BRACES



SUPERIOR CONCRETE ACCESSORIES, INC.
4110 Wrightwood Avenue, Chicago 39, Illinois
New York Office
1775 Broadway, New York 19, N. Y.
Pacific Coast Plant
2100 Williams St., San Leandro, Calif.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 310



The big Kennedy-Van Saun crusher, installed by Somerset Crushed Stone at its Bernardsville site, will lift production high above the 3,000-ton daily average maintained in the past. The plant was erected just prior to the firm's 10th anniversary.

Somerset Crushed Stone expands on its anniversary



Anthony Ferrante, owner of the firm, radiates hospitality during the open house celebrating the anniversary and newly enlarged facilities.

When Somerset Crushed Stone Co., Inc., Bernardsville, N. J., held open house at its plant on Route 202 to mark its 10th anniversary about a month ago, it made the occasion one for a double celebration. The firm, owned and operated by Anthony Ferrante with the help of his son James, had just completed installing a 155-ton Kennedy-Van Saun primary crusher which will make daily production figures soar above 3,000 tons per day.

The big crusher is mounted on a slab which required 250 yards of concrete and is reinforced with structural steel, and this in turn rests on a solid rock base. Driven by a Crocker-Wheeler 200-hp electric motor, it is fed by a 250-ton surge bin made by Gaspar Crusher, Union, N. J. Hewitt-Robins conveyor belts lead to

PLACING CONCRETE
SETTING STRUCTURAL STEEL
HANDLING MATERIALS

These Bucyrus-Erie Crane Features Help You On Every Phase of Building

Maximum Stability- A low center of gravity and long, wide-spread crawler units give Bucyrus-Erie cranes a firm footing for the safe handling of long booms. This kind of stability enables operators to work rapidly.

Independent Boom Hoist- Boom hoist on Bucyrus-Erie cranes is independent of all other functions . . . is available instantly for boom angle changes. Lowering speed is power-controlled.

"Full-Feel" Control- Direct-connected controls give operator unequaled "feel" of the load. Big clutches are instantly responsive, smooth in action, provide utmost load-handling safety, let the operator "inch" load accurately up or down.

Simple Jib Extension Connections- Jib extensions can be connected without removing sheaves, guards, suspension ropes or any of the boom-point machinery.

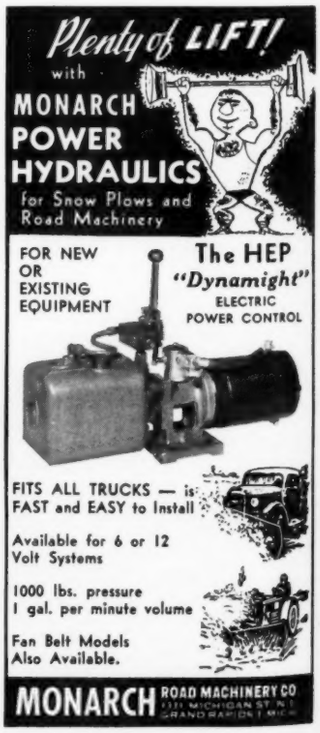
See your Bucyrus-Erie distributor for complete information on cranes with boom lengths up to 120 feet. Jib extensions are from 10' to 30' long. Crane capacities are variable depending on length of boom, size of crawler mounting, and counterweight used. 153E55

BUCYRUS ERIE
South Milwaukee Wisconsin
1880 75 1955
YEARS OF SERVICE to Men Who Shape the Earth



A Bucyrus-Erie 54-B with 100-ft. boom and 20-ft. jib pours concrete for an $11 million hospital project for County of Milwaukee, Wisconsin.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 311



For more facts, circle No. 312

Vibrex scalping screens and a secondary Allis-Chalmers gyratory crusher which helps break the rock down to a usable size.

Ferrante, who today operates the Peapack limestone quarry at Peapack, N. J., and an asphalt plant in the hills overlooking the Somerset quarry, got his first job as a water boy for the road crew that built Route 202. He actually started work as a landscape gardener in 1931, later going into road building, then excavating, and general contracting. His first contract with the quarry business came when he tore down a house and sold the lumber to the H. W. Hoffman Construction Co., which used the material to build up the Somerset quarry—the same quarry Ferrante purchased in 1945.

The firm, growing ever since has a machine shop capable of handling all but the biggest repair jobs, and a safety record which boasts not a single fatality in the last ten years.

Survey on hurricanes

A survey to find means of forecasting the paths of hurricanes, and to improve warning services and minimize loss of life and property, is being undertaken by the U. S. Army Corps of Engineers with the cooperation of the U. S. Weather Bureau and other federal agencies.

For the first year, studies will be concentrated in the New England, Long Island, and Carolina areas, the places which were hit hardest last year by hurricanes Carol and Hazel.

A congressional appropriation of $1 million is available for the study, exclusive of money alloted to the weather bureau for hurricane activity. After preparing estimates of the cost of the study and developing a working plan, the Corps will make concrete proposals on the construction of breakwaters, seawalls, dams, dikes, and other structures for places designated as priority areas.

Allis-Chalmers enlarges Cedar Rapids works

A $1,800,000 expansion program for the Cedar Rapids works of the Allis-Chalmers Mfg. Co., has been put into operation and is expected to be complete early next year. Construction of new buildings, a new experimental and engineering laboratory, and the enlarging of old facilities are included in the program. The company's motor scrapers and motor wagons are made at the Cedar Rapids, Iowa plant.

Floodlight for outdoor use

■ An outdoor floodlight designed for heavy-duty use has been announced by Stonco Electric Products Co., 333 Monroe Ave., Kenilworth, N. J. The new No. 40-L floodlight is said to eliminate back-light halo completely. At the same time it gives the lamp full protection while permitting ample circulation of cooling air.

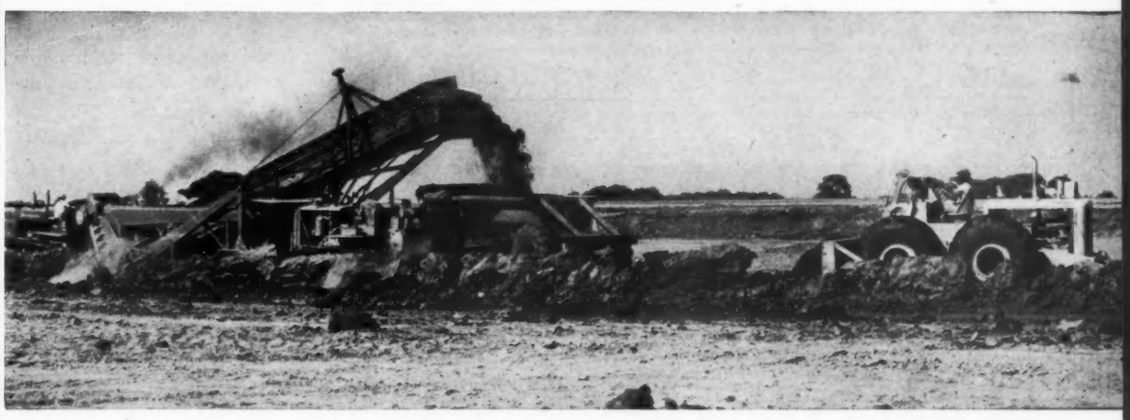
Developed for all-weather use, particularly in face-up position, the new unit features the Stonco Cushion-Seal, a high-temperature silicone-rubber weather-seal that protects it from moisture and shock.



The cast-aluminum housing is mounted on an adjustable swivel arm. An aiming quadrant for easy angle-positioning is built into the holder.

Approved by Underwriters' Laboratories, the new Stonco floodlight is available with narrow and wide-beam lamps, wiring troughs, splice boxes, and other fittings for multi-unit floodlighting assemblies.

For further information write to the company, or use the Request Card at page 18. Circle No. 28.



19 mph tractor handles all cleanup on 4½-mile section of Ohio Turnpike

To grade a 4½-mile section of the Ohio Turnpike south of Sandusky, D. R. Smalley & Sons of Celina had to move 1,300,000 cubic yards of black dirt, silted sand, and clay.

While most of the production dirtmoving was assigned to a conveyor-type loader working with a fleet of bottom-dumps, contractor's mobile Tournatractor proved invaluable for fast handling of scattered dozing and miscellaneous tractor jobs.

Cleans spillage around loader

Most important project for the Tournatractor was cleaning overflow and spillage in the cut. By moving quickly around loader, pulling-and-pushing tractors, and haul units, it did this work without interruption to the loading cycle. In spare time, Tournatractor made good use of 19 mph travel speeds by driving all over the project to handle a wide variety of "hit-and-run" dozing and towing assignments.

Whenever one of the bottom-dumps got stuck in soft footing or climbing upgrade, Tournatractor came to the rescue... pushed hauler up the slope or through muddy spots... then hurried back to its regular job at the loader. On other occasions, unit spread fill... graded slopes and did other dozing... and towed a LeTourneau-Westinghouse sheepsfoot roller.

Does work of several crawlers

To handle the same scattered assignments completed by this one Tournatractor, company officials say several crawlers would have been needed.

"Tournatractor can really get around," is the way Supt. George M. Smalley describes Tournatractor mobility.

Operator H. K. Castal agrees, "I like the maneuverability of the Tournatractor. It's easy to operate, too!"

Consider these 3 advantages!

No matter what size equipment fleet you have, no matter whether you move dirt with scrapers or trucks — or both — you'll want to investigate these major Tournatractor advantages!

1 Tournatractor's fast forward speed, instant gear changes and 8 mph reverse enable it to do twice as much work as a crawler-tractor on most jobs.

2 Tournatractor reduces travel time between jobs by driving anywhere under its own power at speeds up to 19 mph.

3 Its four single-wheel units, with power traveling on sealed anti-frictions, require much less maintenance than crawlers with their 450 to 550 moving parts.

Why not see and judge for yourself? Let us demonstrate Tournatractor's abilities on your job. Call or write us to arrange time and place.

Tournatractor—Trademark T-717-H-b



Driving job-to-job at speeds to 19 mph, Tournatractor's low-pressure tires absorb most of the jolts of cross-country travel. Says Operator H. K. Castal, "Tournatractor rides nicer than a crawler. You don't get the old jar!"



Tournatractor helps bottom-dump up grade. Tractor's 208 hp diesel, big 21.00 x 25 low-pressure tires, and 4-wheel drive combine to provide plenty of pushing power.

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

For more facts, use Reader-Reply Card opposite page 18 and circle No. 314



KIESLER Since 1892

2-LEVER ARM CLAM SHELL BUCKETS with POWER ON BOTH SHELLS

"A PAYLOAD EVERY TRIP"

The ONLY Bucket that DIGS-IN instead of Lifting-Out. Write for literature

JOS. F. KIESLER COMPANY

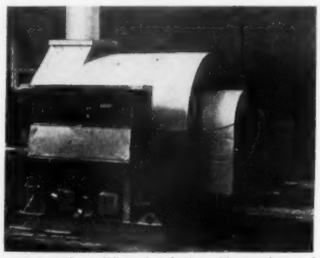
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For more facts, circle No. 313

Yong joins Soiltest

Raymond Yong, formerly with the Illinois Department of Highways, has joined the engineering staff of Soiltest, Inc., Chicago, Ill., maker of test apparatus for soils, concrete, and asphalt.

Modernize Your Plant with a "Meadows Hy-Temperature Heating System"



Based upon 27 years' experience in the manufacture and operation of Hot Oil Heat Transfer Systems, we present a new revolutionary, portable hot oil heating system for industrial application:

- *Features:* Maintains temperatures up to 600°F.
- Very low operating pressure • No freeze ups.
- Highly efficient. • *All oil in heating zone in constant and positive circulation.* No pockets of oil to become overheated and decomposed. • Automatic in operation with highest grade safety controls. • No licensed engineer needed for operation. • Portable—self-contained—mounted on skids. Can be easily moved. • Each installation given our personal supervision.

George C. Meadows & Co., 24 S. Liberty St., Elgin, Illinois

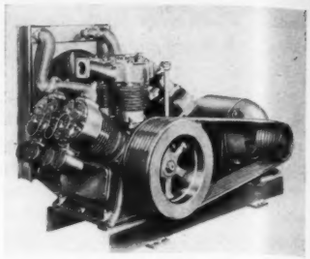
For more facts, use Reader-Reply Card opposite page 18 and circle No. 315

New air-cooled models of stationary compressors

■ A new line of two-stage, air-cooled, electric-motor-driven compressors has been announced by the Le Roi Division, Westinghouse Air Brake Co., 1706 S. 68 St., Milwaukee, Wis. These new 50, 75, and 100-hp stationary compressors have displacements of 260, 415, and 550 cfm at 125-psi operating pressure.

Ideal for applications where compactness, light weight, and a minimum of operator attention are required, the new 3-cylinder 50S2 and 6-cylinder 75S2 and 100S2 compressors have a balanced design said to reduce vibration and noise to a minimum.

Cylinders are made of alloy iron and are cooled by a high-speed belt-driven fan which draws air through a sectional-core intercooler and directs it over the cylinders and heads. Each bank of cylinders has individual intake filters.



This is one of three new Le Roi stationary compressors that deliver 260, 415, and 550 cfm at 125 psi.

Standard equipment of these belt-driven compressors includes a dual-control that gives the operator a choice of start-and-stop operation of both motor and compressor or a continuous running of motor with intermittent compressing. The latter selection permits the compressor cylinders to unload instead of compressing when the desired pressure is reached.

For further information write to the company, or use the Request Card at page 18. Circle No. 40.

Shoring system uses standard pre-cut members

■ The advantages offered by a shoring method that uses precut shoring members are described in a leaflet from Elis Equipment Co., Inc., 221 N. W. 4th St., Oklahoma City, Okla. The Elis method uses two standardized members overlapped and fitted through metal clamps to make a single adjustable shore. Other metal parts include a slip-in holder, a shorehead clamp, and a hand jack for adjusting the height of the shore under load.

According to the literature, the labor required for erection and wrecking is reduced substantially with this system. This is because the measuring, cutting, splicing, blocking, and wedging of conventional methods is largely eliminated. It is also explained that there is a considerable time and material saving involved in the reuse of the standardized shore members.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 80.

Booklet on diesel engine designed for heavy trucks

■ A short booklet from Mack Trucks, Inc., 350 Fifth Ave., New York 1, N. Y. lists 10 advantages offered by the Mack Thermodyne diesel engine. Some of the more important include fuel economy, efficiency, smoothness, safety, and reduced maintenance costs.

Cartoons are used to illustrate each of these points.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 106.



Wire Rope at Work—Probably many residents of Spokane, Wash., remember scenes like the one above, photographed while the new Coliseum was under construction. Now those curved steel beams support the roof of the finished structure, whose main enclosure is approximately 210 ft long by 125 ft wide. The largest civic auditorium in the Pacific Northwest, the Coliseum can be used for stage and trade shows, conventions, ice-skating, basketball, boxing, and other indoor activities.

Bethlehem wire rope, flexible and strong, was active during the building. Its chief job, of course, was the lifting of heavy loads, including the many roof beams. This it took in stride, performing reliably as always, and helping the steel-erection work to progress with unusual speed. A typical assignment for Bethlehem rope, which is at home on any type of construction project, large or small.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

CONSTRUCTION • MINING • PETROLEUM • EXCAVATING • QUARRYING • LOGGING • MANUFACTURING



For more facts, use Reader-Reply Card opposite page 18 and circle No. 316

CONVENTION CALENDAR

October 10–12 American Society of Lubrication Engineers and American Society of Mechanical Engineers

Second Annual Joint Lubricating Conference, Hotel Antlers, Indianapolis, Ind. William P. Youngclaus, Jr., administrative secretary, ASLE, 84 E. Randolph St., Chicago 1, Ill.

October 14–15 National Society of Professional Engineers

Fall Meeting, Peabody Hotel, Memphis, Tenn. Lorin Allen, general chairman, NSPE, 65 McCall Place, Memphis 3, Tenn.

October 17–19 Southeastern Association of State Highway Officials

Meeting, Daniel Boone Hotel, Charleston, W. Va. William T. Brice, executive secretary, State Road Commission of West Virginia, Charleston, W. Va.

October 17–21 National Safety Council

Forty-third National Safety Congress and Exposition, Conrad Hilton Hotel, Chicago, Ill. R. L. Forney, secretary, NSC, 425 N. Michigan Ave., Chicago 11, Ill.

October 24–28 American Society of Civil Engineers

Annual New York Convention, Statler Hotel, New York, N. Y. Don P. Reynolds, assistant to the secretary, ASCE, 33 W. 39th St., New York 18, N. Y.

October 27–28 National Slag Association

Thirty-eighth Annual Meeting, Grand Hotel, Point Clear, Mobile, Ala. E. W. Bauman, managing director, NSA, 613 Perpetual Bldg., Washington 4, D. C.

October 30–November 2 Wire Reinforcement Institute

Meeting, Ambassador Hotel, Chicago, Ill. Frank B. Brown, managing director, WRI, 1049 National Press Bldg., Washington 4, D. C.

October 31–November 1 American Concrete Institute

Meeting, Atlanta Biltmore, Atlanta, Ga. William A. Maples, secretary-treasurer, ACI, 18263 W. McNichols Road, Detroit 19, Mich.

October 31–November 2 National Lubricating Grease Institute

Meeting, Edgewater Beach Hotel, Chicago, Ill. Harry F. Bennetts, executive secretary, NLGI, 4638 J. C. Nichols Parkway, Kansas City 12, Mo.

November 2–4 Virginia Highway Conference

Conference, Virginia Military Institute, Lexington, Va. R. P. Ellison, executive assistant, Virginia Department of Highways, 1221 E. Broad St., Richmond 19, Va.

November 7–8 Diesel Operators Conference

Conference, Student Union Building, University of Nebraska campus, Lincoln, Nebr. R. W. Mills, supervisor of institutes, 101 Architectural Hall, University of Nebraska, Lincoln.

November 14–16 American Concrete Pipe Association

Meeting, Chase Hotel, St. Louis, Mo. Howard F. Peckworth, managing director, ACPA, 228 N. LaSalle St., Chicago, Ill.

November 27–December 2 American Institute of Steel Construction

Annual Convention, Boca Raton Hotel, Boca Raton, Fla. L. Abbett Post, executive vice president, AISC, 101 Park Ave., New York 17, N. Y.

December 1–2 Mississippi Valley Flood Control Association

Meeting, Hotel Roosevelt, New Orleans, La. Bruce Tucker, executive vice president, MVFCA, 203 Hotel Peabody, Memphis, Tenn.

December 7–9 American Association of State Highway Officials

Meeting, Jung Hotel, New Orleans, La. J. A. Kinkead, reservations chairman, AASHO, Department of Highways, Baton Rouge, La.

December 12 New York State Bituminous Concrete Producers Association

Meeting, Waldorf Astoria Hotel, New York, N. Y. Gus Rayner, executive secretary, NYSBCPA, 30 Niblock Court, Albany, N. Y.

January 6 Northeastern Weed Control Conference

Meeting, Hotel New Yorker, New York, N. Y. Richard J. Aldrich, secretary, Farm Crops Department, Rutgers University, New Brunswick, N. J.

January 11–14, 1956 American Road Builders' Association

Annual Convention and 1956 Highway Materials and Supplies Exhibit, Miami Beach Auditorium, Miami Beach, Fla. Norman T. Almquist, administrative services manager, ARBA, World Center Bldg., Washington, D. C.

January 12 National Constructors Association

Meeting, Plaza Hotel, New York, N. Y. C. B. Bronson, secretary, NCA, 50 E. 41st St., New York, N. Y.

On ASME committee

Dwight M. McMakin has been appointed an associate of the executive committee of the Oil and Gas Power Division of the ASME. Mr. McMakin, associated with the American Air Filter Co., Inc., is the only representative of that industry on the committee.

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Diamond and Shot Core Borings, Dry Sample Borings, Grout Holes and Pressure Grouting, Foundation Testing for Bridges, Dams and all Heavy Structures

Leading manufacturers, also, of High-Speed Diamond Drilling Machines and Complete Accessory Equipment, including all types of Diamond Drilling Bits.

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SPRAGUE & HENWOOD, INC.

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For more facts, circle No. 317

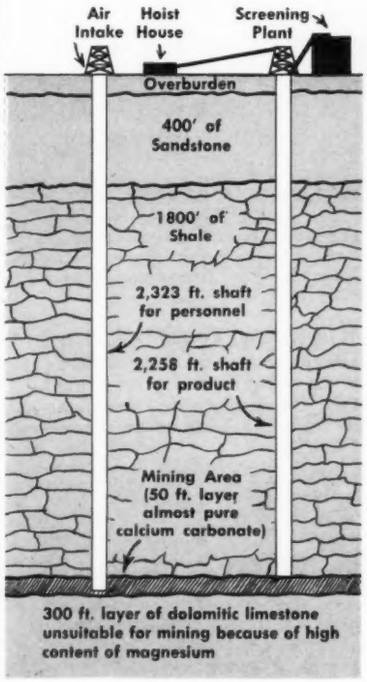
2300 ft. underground

7 Rear-Dumps haul million tons of limestone yearly



Imagine yourself with the problem that faced a large Eastern chemical company a few years ago.

Your plant needs thousands of tons of limestone daily for manufacture into agricultural lime and cement, and for chemical processing into chlorine, soda ash, and other products. Much of your stone has to be shipped in. Transportation prices are boosting your costs.



300 ft. layer of dolomitic limestone unsuitable for mining because of high content of magnesium

Diagram shows the two 8′ x 17′ shafts. One carries men and equipment, the other brings crushed limestone to the surface. Shafts also carry in 100,000 cubic feet of fresh pumped air every minute. They also take out blasting and diesel fumes. The natural mine air is dry . . . no water drips from ceilings or seeps through walls. Temperature stays 80° year-round. Cave-in dangers are absent . . . strength of the limestone sidewalls, plus arching effect of 2,000 ft. of rock above, eliminates need for shoring or other artificial bracing.

With these difficulties, you'd undoubtedly do what this company did — look for a nearby source. You'd probably never guess what would turn up. Some 2,300′ below your own backyard, under clay, shale, and sandstone, your drills would run into a 50′ layer of almost pure limestone. Satisfactory material, tests showed, for all your needs. But how could you get to it?

Sink two 2300′ shafts

This company answered that question by borrowing some ideas from underground ore and coal miners. First, they drove two 8′ x 17′ steel-and-concrete-lined shafts vertically to the limestone bed. Then, they developed a network of underground roads (now totaling 19.9 miles) to a centrally-located crusher. Next they equipped the mine with 4 electric shovels, 9 drilling rigs, a tractor, 4 loaders, 4 trucks, and a bus to move 80 workers to their assignments.

For hauling, they chose 7 LeTourneau-Westinghouse Rear-Dumps, 16-ton models with bodies built up to hold 20 tons. These units, company officials figured, would be ideal for underground use, because they could turn non-stop anywhere on the narrow 32′ roadways — and their simple rugged construction would reduce repair work.

Assemble machines on mine floor

Then came another problem: how to get these big Rear-Dumps into the mine, nearly ½ mile below? LeTourneau-Westinghouse engineers helped out here. The rigs were shipped to the plant tack-welded. Wheels and prime-movers were separated and lowered down the shaft. Truck bodies, too, were cut apart and lowered. Re-welds and re-assembly were made on the mine floor, and work was started.

With the 1½-yd. shovels loading well-blasted limestone, each Rear-Dump gets 20-ton heaped load in about 2 minutes. Haul of 3,000′ one way over the level underground roads is made in 2nd and 3rd gear (7 and 13 mph); return in 3rd. The 7 Rear-Dumps average 3,600 tons of limestone per 16-hour day . . . over a million tons per year. Short turns with power steer have proved a major advantage in speeding spots at shovel, for backing to dump into hopper, and for maneuvering in all tight spots.

Another advantage these Rear-Dumps have given is safety. *Each* of the 4 wheels has more braking surface than *all* 4 wheels on most haulers. Operators travel confidently at high speeds.

A third advantage . . . there has been practically no downtime for tire troubles on the Rear-Dumps' big single pneumatics. In 4 years of single and double-shifting the 7 units, only one blowout has occurred. Sets of tires have lasted as long as 7,000 hours without recapping, despite the rough pit floor and heavy 20-ton loads. Plant records show over-all mechanical efficiency for all the Rear-Dumps of 96%.

You, too, can lick your hauling problems with LeTourneau-Westinghouse Rear-Dumps. Ask for a demonstration on your job. There's a size to fit your needs . . . 9, 18, 35, and 50 tons.

LeTourneau-Westinghouse Company
PEORIA, ILLINOIS
A Subsidiary of Westinghouse Air Brake Company
R-664-Q

For more facts, use Reader-Reply Card opposite page 18 and circle No. 318



The new Mall vibratory earth borer can make a hole for laying piping and wiring beneath sidewalks considerably faster than possible with manual methods.

Vibratory machine bores holes under sidewalks

■ A new earth borer from Mall Tool Co. makes a 2-inch-diameter hole straight through soil under concrete sidewalks and even under wide driveways without removing any soil. The machine speeds and simplifies the boring required for laying underground piping and wiring.

Easy to handle and operate, the power borer can be conveniently rolled from one place to another on its wheelbarrow mounting. One man wheels, while another carries the boring head and flexible shaft.

For further information write to Mall Tool Co., 7725 S. Chicago Ave., Chicago 19, Ill., or use the Request Card at page 18. Circle No. 135.



Technical Tape's Tuck No. 120 is applied to the corners of a paper box form.

Tape for reinforcing corrugated box forms

■ A paper-backed pressure-sensitive tape for reinforcing corrugated box forms used in lift-slab construction is announced by Technical Tape Corp., Harlem River and W. 177th St., Morris Heights 53, N. Y. The strength, adhesive quality, and conformability of this tape are said to be especially suited to this new application.

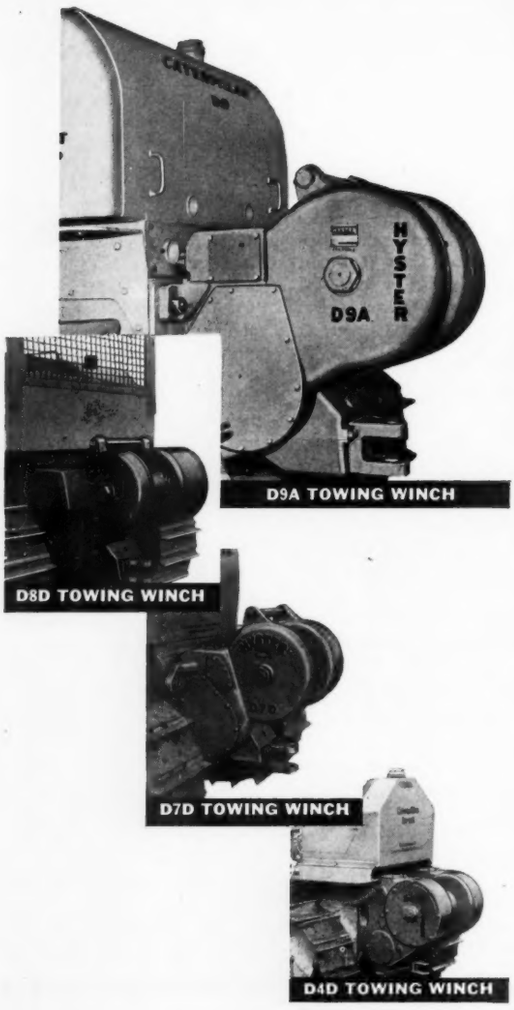
Technical Tape's Tuck No. 120 is recommended for reinforcing specially made corrugated boxes used to create a waffle pattern in floor slabs. The tape is applied to the four corners of the box and across two folds at the bottom. According to the manufacturer, this is done quickly on the job.

Additional Tuck No. 120 is then used to secure the box forms in position on the casting slab. Thus reinforced and secured, the forms are said to withstand the loads of reinforcing steel, workmen, and the concrete.

For further information write to the company, or use the Request Card at page 18. Circle No. 109.

NEW HYSTER® WINCHES

for the new *Cat D9 - D8 - D7 and D4 tractors



1 PERSONALIZED CONTROL MOUNTINGS — New flexible cable control makes it easy to mount control lever bank in exact position most convenient for each operator. Flexible cable is threaded under tractor seat — completely protected from wear and damage. All control cranks and links are totally enclosed for maximum protection

2 SMOOTHER SHIFTING, LONGER GEAR LIFE with new Hyster Constant-Mesh Transmission. Gear design with maximum tooth contact-ratio, assures positive action. All gears are case-hardened for longer life.

3 LARGE CAPACITY BRAKES are designed to hold loads larger than can be moved by winch line. Cover plate can be quickly removed for easy external adjustment. Automatic Brake is optional equipment on all equipment.

4 BUILT IN DRAWBAR ON D9A, D8D and D7D can be quickly changed from rigid to swiveling action by removing two lock plates. Drawbar shaft is precision fitted in bronze graphite bushings to insure long shaft life.

Completely redesigned for use in new *Cat diesel Tractors, these new Hyster winches will also mount on older model D8, D7 and D4 Tractors.

See your Caterpillar-Hyster Dealer or write direct to Hyster Company, 2952 N. E. Clackamas St., Portland 8, Oregon, or 1852 North Adams St., Peoria 1, Illinois.

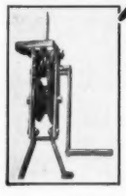
HYSTER COMPANY

"Matched Design" Tractor Tools for Caterpillar-built Tractors

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Sasgen



"CAM-LOCK" SCAFFOLD WINCH

takes the *FALL* out of rope and fall swing staging!

- assures maximum job safety
- close-fits cornice hook
- eliminates ropes . . . cuts costs

PATENTED SASGEN CAM-LOCK AND PAWL DESIGN



- permits fast raising
- limits letdown to 30-40 RPM
- positively stops runaways

Sasgen 500-lb. capacity single line winch shown . . . holds fifty feet of 3/16" steel aeronautic cable. Long-famous Sasgen construction: all steel, bronze bushed drum and pinion shafts. Weight without bail and cable: about 10 lbs.

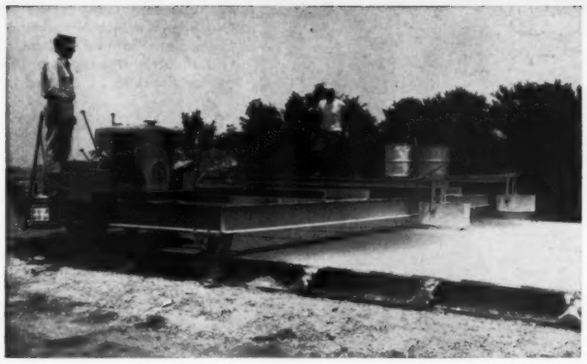


"Cam-Lock" Winch shown on new Sasgen Bail at right . . . can be furnished for use with old style bail. Write for data.

SASGEN DERRICK COMPANY

3127 GRAND AVENUE • CHICAGO 22, ILLINOIS

For more facts, circle No. 320



The General curing machine coats fresh concrete uniformly in a matter of minutes.

Curing rig boasts speed, uniform control of spray

■ Positive control of spray and up to 300 per cent faster operation than any machine previously available are features claimed for the new automatic curing machine offered by General Road Machines, Inc., a new manufacturer in the road-building machinery field.

The General curing machine is constructed of heavy-gage all-welded steel and is powered by a 12-hp 2-cylinder gasoline engine geared to oversized transmissions. Four forward and four reverse speeds are provided, and traction speed ranges from 7.6 to 65 feet per minute. Track wheels may be either single or double flanged, or flat-faced rubber-tired.

Standard width adjustments of from 10 to 15 feet and from 20 to 25 feet are provided by the unit, which mounts on the form line behind the finisher and is one-man operated. Curing solutions are pumped from 55-gallon shipping drums mounted on the machine, and 12-foot spray arms swing out over the concrete in overlapping transverse arcs. Two protected nozzles assure a uniform spray pattern even under severe wind conditions.

Optional brooming, reciprocating belt, and burlap-drag attachments are available for mounting on the curing machine.

For further information write to General Road Machines, Inc., Niles, Ohio, or use the Request Card at page 18. Circle No. 50.

Booklet on applications of cement-placing gun

■ The manufacturer of the Cement Gun, which places gunite, a mixture of sand and cement, has released a new booklet showing a wide variety of application for this equipment. The literature also contains complete specifications on the gunite mixture.

One section describes the operating parts of the Cement Gun, illustrating these with a cut-away sketch of the machine. Other sections discuss the use of gunite in building construction; concrete repair work; canal, pipeline, sewer and reservoir construction; and pressure grouting.

To obtain Bulletin 3000 write to the Cement Gun Co., 1520 Walnut St., Allentown, Pa., or use the Request Card at page 18. Circle No. 105.

Mechanical-joint pipe

■ A 32-page booklet describing its mechanical-joint pipe and fittings is available from the Warren Foundry & Pipe Corp., 55 Liberty St., New York, N. Y. Photographs illustrate the method of installation, and complete tables give dimensions, classes, sizes, and other data on Warren-Spun pipe and fittings.

To obtain this booklet write to the company, or use the Request Card that is bound in a page 18 of this issue. Circle No. 113.



Versatile "D" heaps load with help of small 66 dhp tractor. Rig can also self-load effectively in most materials. Two machines, using own dozer blades or push-plates, can quickly load each other.

Work in close quarters
Make sharp turns
Climb steep banks



After spreading on levee, units travel down bank to canal. Sharp turns are easily negotiated with "D's" ability to turn around non-stop in space only 26' wide.



2 Tournapulls, owned by Jordan, Ruff & Spurlock of Hayward, California, relocate Livermore Canal in Alameda County. "Can't beat these machines on this type of work," say the owners.

Owner records, covering the first 20 working days, or ⅔ of the 60,000 yard, 1½ mile state-sponsored excavation project, show excellent production for their two side-boarded 7-yard D Tournapulls.

Average 150 yds. hourly on 1000' hauls

On average 2000' cycles — hauling along the canal bottom, up a steep bank, and spreading on top of a levee — each Tournapull delivered a load every 4½ to 5½ minutes. Owners estimate loads in the dry clay material ran around 6½ to 7 pay yards each. Production per machine on the 1000' hauls averaged 10 to 12 loads per 55-minute hour...combined hourly output for the 2 machines varied from 130 to 168 pay yards. Most of the time during the 200 working hours studied, when hauls were somewhat shorter than 1000', owners figure combined hourly output was almost exactly 200 pay yards.

"You just can't beat Tournapulls for this type of work," is the conclusion of Jordan, Ruff and Spurlock. "The 'D's' work fast in close quarters, make sharp turns, produce well, and at low cost."

Drive job-to-job at speeds to 28 mph

Another advantage of these 140 hp machines is their job-to-job mobility. A typical 50-mile trip through city and country traffic takes about 2 hours. Top speed is 28 mph. No trailers are needed, no loading, no blocking . . . "D's" go everywhere under their own power.

You, too, can save time and make more money with D Tournapull's high-speed, rubber-tired mobility and production ability. For proof, see your LeTourneau-Westinghouse Distributor. Ask for a demonstration . . . find out first-hand how the versatile "D" can make money on one-man, one-machine dirtmoving, or as a production tool in pusher fleets.

Tournapull—Trademark Reg. U.S. Pat. Off. DP-721-D-b

A Subsidiary of Westinghouse Air Brake Company

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

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For more facts, circle No. 321



An upstream view of the Atchafalaya River, formed by the Red and Old Rivers, which is carrying more and more of the Mississippi's flow at this point. Planned control structures on the Mississippi and a dam on Old River will keep the Mississippi on its present course and permit excess flows to be carried by the Atchafalaya.

Old Man River will roll along with help from Corps of Engineers

Ten-year project involving control structures, lock, and dam, will prevent a threatened change in the course of the Mississippi

Late this year one of the most ambitious river-control projects ever undertaken, a project designed to keep the Mississippi River flowing on its present course into the Gulf of Mexico —will be placed under construction by the New Orleans District of the U. S. Army Corps of Engineers.

Comprising two control structures, a navigation lock, and an earth-fill dam, together with approach, inlet and outlet channels for the control structures, the job is designed to keep the waters of the Mississippi from being drained through Old River to the Atchafalaya River, which provides a steeper, shorter, and more direct route to the Gulf. The job will take ten years and, exclusive of the navigation lock still being planned, will cost an estimated $47 million. Supervision of the work will be done by the president of the Mississippi River Commission, U. S. Army Corps of Engineers.

The trouble spot on the Mississippi is located about halfway between Natchez, Miss., and Baton Rouge, La. Here, the Mississippi and three other rivers join, roughly forming the letter H. The Mississippi forms the eastern leg of the letter, and the Red and Atchafalaya rivers form the western leg. The Red River ends and the Atchafalaya begins at Old River, which is the cross bar of the H.

The current problem—that of preventing Mississippi waters from draining into the Atchafalaya—has been in the making for some time. Until about ten years ago, water from Old River either flowed into or away from the Mississippi, depending on the relative level of water in the streams. Since that time, the flow has been going from the Mississippi into old River, then into the Atchafalaya and to the sea.

This threatened change in course is not a new phenomenon on the river. An alluvial stream, the Mississippi has changed its course a number of times through the centuries. Once Bayou Teche carried Mississippi waters; so did Bayou Lafourche, a tiny stream now crossed by footbridges. But these changes were less serious then than they would be today. Should present diversion continue, New Orleans would be left without fresh water for industrial, commercial, and domestic purposes; the flood control plan for the lower Mississippi basin would have to be revised; river navigation would be impaired; both navigation and flood control structures would have to be rebuilt; and bridges, pipelines, and even towns and cities might either have to be rebuilt or abandoned.

But nature is not going to be allowed to pursue her course. The control structures planned by the Corps of Engineers will prevent water from flowing through Old River into the Atchafalaya, keeping it on its present course past New Orleans. Only when the Mississippi rises will water be shunted into the Atchafalaya.

Key unit to be built first

The smallest and most important of the facilities to be built first will be the low-sill concrete structure, lo-

Cut Welding Costs with this **Contractor Special** welder

Welds anywhere!



"Contractor Special" 250-amp Gas Drive Arc Welder.

Do the job faster, better with Hobart. You'll avoid time-consuming breakdowns that delay the job and roll up cost.

Hobart Gas Drive Welders are used anywhere to fabricate steel or repair equipment. No need for power—they provide their own. A type and size for every construction job—large or small.

Many contractors standardize on the 250 amp "Contractor Special." A full capacity 250-ampere welder, yet compact and lightweight for easy moving from job to job.

Others like the combination AC Arc Welder and AC Stand-by Power Unit. Welds or powers lights, tools.

For extra heavy duty welding, contractors favor the Hobart DC Gas Drive Welders ranging up to 600-ampere capacity with many combinations of auxiliary power.

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AC Arc Welder-AC Stand-by Power Unit.

HOBART TROY OHIO **WELDERS**



Heavy duty Gas Drive DC Arc Welder.

Tear off and MAIL TODAY!

● HOBART BROTHERS CO., Box 8105, Troy, Ohio, U. S. A. Telephone 21223

Without obligation, please send information on items checked.

☐ "Contractor Special" ☐ AC Arc Welder-AC Power Unit
☐ DC Gas Drive Welders ☐ Electrode samples for_____

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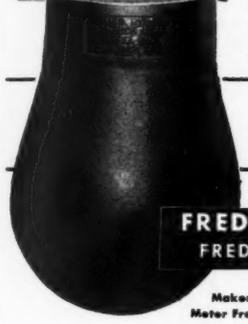
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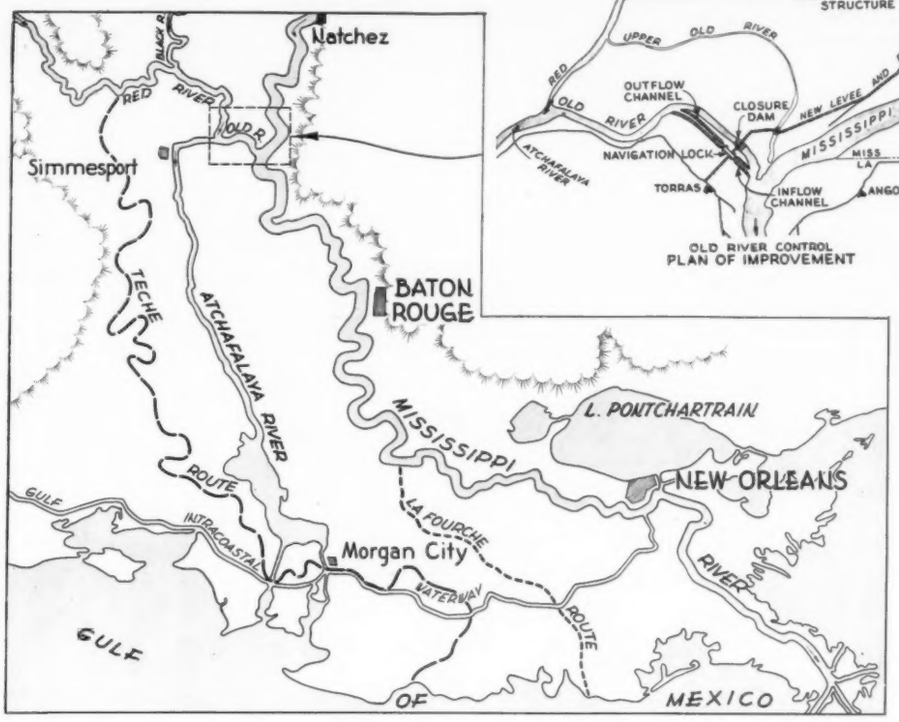
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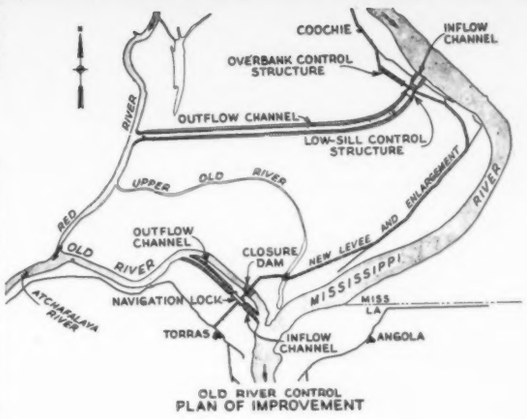
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The area of proposed construction, blocked out below, is shown in detail in the enlarged map at right. The dam navigation lock and outflow channel on Old River and the control structures just upstream will keep the Mississippi on its course past Baton Rouge and New Orleans. The Atchafalaya will carry excess flows.





cated on the west bank of the Mississippi about ten miles upstream from Old River. At this point, it will control the flow of the Mississippi during all river stages, preventing a high water level in the Mississippi where the river joins the Old River. An inflow channel will carry water to the control structure, and a dredged outflow channel will lead water to the Red and Atchafalaya rivers.

The low-sill structure itself will measure 577 feet between abutments and will have 13 gate bays, each with a 37-foot clear opening between piers. Though it is the smallest of the planned structures, it will require about a quarter million cubic yards of sand, gravel, riprap, and concrete, more than 100,000 barrels of cement, and about 90 railroad gondola cars of reinforcing and structural steel.

The inflow channel from the Mississippi will be about a half mile long and will have a bottom width of 1,000 feet at an elevation 5 feet below mean sea level. Water going over the weir crest of the structure will be carried about seven miles to the Red River by the outflow channel, which will have a bottom width of 900 feet. At the control facility, the outflow channel will be 8 feet below mean sea level and at the Red River, it will be about 10 feet below mean sea level. Under favorable tailwater conditions, the channel will be able to handle 300,000 cfs at bankfull stage on the Mississippi.

Spillway controls flood waters

Just upstream from the low-sill structure will be the overbank structure, a concrete spillway 2/3 mile long, which will pass excess floodwater from the Mississippi into the Atchafalaya Basin. Resembling the Morganza Control Structure, the spillway will be 3,356 feet long between abutments and have 73 bays, each with a 44-foot opening between piers. When the level of the river is above the banks, water will pass from the Mississippi into the Red River backwater area to be carried overland through natural channels to the head of the Atchafalaya Basin. Together, the control structures will be able to carry about 700,000 cfs during Mississippi flood stages.

Navigation lock

A navigation lock permitting barge traffic to use the river systems will be built just northwest of Old River's junction with the Mississippi, and will be joined by land cuts to both rivers. The entrance channel for the lock will be about a half mile long and have a bottom width of 250 feet at elevation 10 feet below mean sea level. The outflow channel from the lock to Old River will be about 1½ miles long and will have a bottom width of 250 feet at elevation 10 feet below mean sea level.

The Mississippi River levee between Black Hawk, just north of the control structures, and Torras, just downstream from Old River, will be raised and made stronger before the final job of sealing off Old River's mouth begins. But when the work is finished, the uncontrolled flow of water from the Mississippi to Old River and the Atchafalaya will be stopped for all time. THE END

Rolatape

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MODEL "400" This Model is a favorite and is widely used by Telephone Companies and other Utilities, paving contractors, land appraisers, etc. It's four-foot circumference measuring wheel makes it most suitable for measuring fairly rough terrain. Automatic measuring counter can be reset at any distance. Folds compactly.

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NOTE—All Rolatape Models are designed to tabulate accurate measurements, and are constructed for long and dependable service. With Rolatape, you measure as you walk.

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505 York Road Jenkintown, Pennsylvania

For more facts, use Reader-Reply Card opposite page 18 and circle No. 326

New chain-saw model is powerful and compact

■ Compactness, cutting power, and handling ease have been achieved in the design of the latest Lombard chain saw, the Model 36, according to the manufacturer.

Pistol-grip power control and the special shape of the chrome handle bar allow cuts to be made in the direction the operator chooses. A direct-connected Jet Fed diaphragm pump of standard make gives full, smooth, nonstall power to the engine in any position.

Engine displacement of the Model 36 is 4.7 cubic inches, with 70-pound compression, and the cylinder is of die-cast aluminum with cast-in



sleeve. A positive ignition switch, high-voltage magneto, and water-proof-protected spark-plug cover make starting dependable in any weather.

The clutch and chain oiler are automatic and positive, and double bumper spikes plus the careful balancing of the whole unit make handling easy. The sprocket and shaft are splined, so that there are no loose keys, and the cutter bar studs are secured in special steel inserts. Straight bar sizes available are 16, 20, and 24 inches.

For further information write to Lombard Governor Corp., Ashland, Mass., or use the Request Card at page 18. Circle No. 20.

Data on line of grapples

■ Its line of Scheidt all-purpose grapples is described and illustrated in a brochure available from Ruhr Industries, 1411 Walnut St., Philadelphia 2, Pa. The line includes general material-handling grapples, and models designed for handling rock, digging caissons, and mucking.

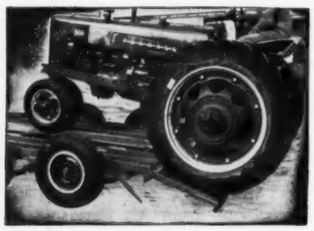
The outstanding feature of these grapples, according to the company, is the individual floating action which permits each tine to stay back or advance, depending on the pressure met. This factor is said to lessen chances of the tines breaking or bending.

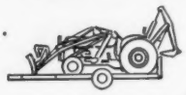
The brochure lists grapple sizes and blade widths for a variety of operations. Diagrams illustrate operation of the equipment.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 138.

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America's Most Advanced Tractor Trailer

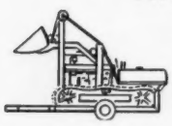




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Because you increase your efficiency with Haulette, it soon pays for itself in time saved and better service.

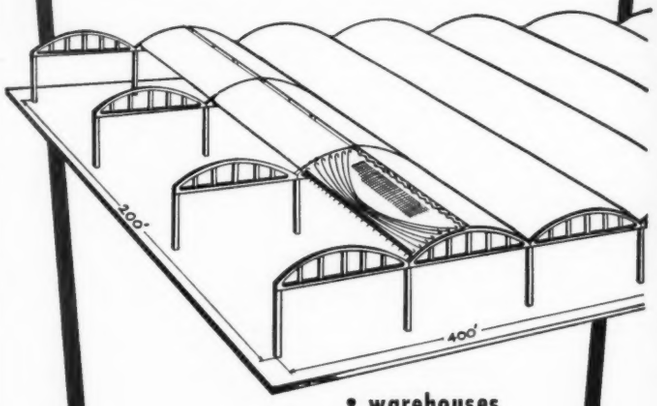
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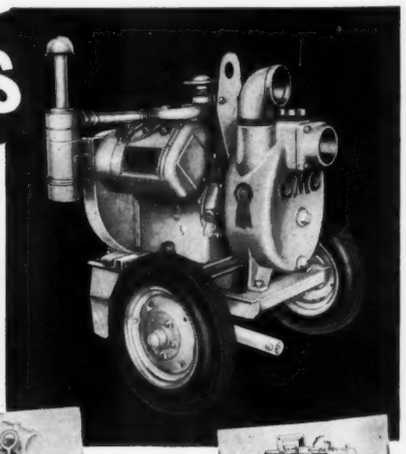
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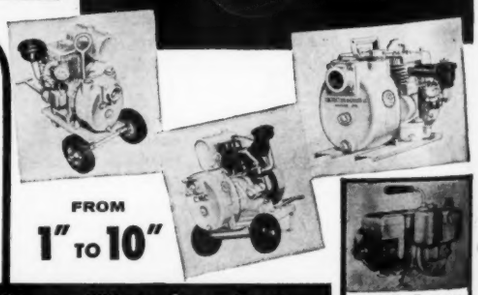


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CONSTRUCTION MACHINERY COMPANY • Waterloo, Iowa

For more facts, use Reader-Reply Card opposite page 18 and circle No. 329



The Coffing Hoist LD-3 double-chain hoist.

Two ratchet-lever units expand chain hoist line

■ Two light but powerful coil-chain ratchet-lever hoists have been introduced by the Coffing Hoist Division of Duff-Norton Co. The new models are the L-1½ with a capacity of 1½ tons; and the LD-3 with a capacity of 3 tons.

Reduction in both hoists is achieved through specially-designed, patented compound levers instead of gears. This feature is said to result in increased efficiency, greater compactness, lighter weight, and a higher safety factor.

The two new hoists are made either in malleable iron or aluminum alloy. The Model L-1½ weighs 26½ pounds in malleable iron; 20 pounds in aluminum. The Model LD-3 is 34½ pounds in malleable iron and 28 pounds in aluminum. The Model L-1½ is single chain with a standard lift of 56½ inches, minimum distance of 14 inches between hooks, and requires a lever pull of 60½ pounds to lift the rated capacity. The double-chain LD-3 has a standard lift of 57 inches, minimum distance of 18½ inches between hooks and takes a lever pull of 62 pounds to lift the rated capacity.

Hooks are specially designed drop-forged alloy and will not bend or straighten out.

For further information write to Coffing Hoist Division, Duff-Norton Co., 800 Water St., Danville, Ill., or use the Request Card at page 18. Circle No. 127.

Cab-controlled crane hook handles concrete buckets

■ A pneumatically-operated and electrically-controlled lifting hook for cranes is the latest product to be announced by Gar-Bro Mfg. Co., 2415 East Washington Blvd., Los Angeles, Calif.

This all-welded reinforced hook, while especially suited to handling concrete buckets, is also useful for many other lifting jobs. It can be operated by push-button from the crane cab.

Made in two sizes of 6 and 12-ton capacities, it is reported to be safe and positive in action. According to the manufacturer, it cannot open under any load within its capacity. The jaws open wide for easy pick-up and overlap in closing.



The new Gar-Bro crane hook.

For further information write to the company, or use the Request Card at page 18. Circle No. 31.

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DRILLED AND UNDERREAMED
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SPECIAL DRILLING PROBLEMS

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POWER SHIFT
NO CLUTCH
TORQUE CONVERTER



HUBER-WARCO 5D-190 (195 H.P.)

POWER!

Tough grading jobs are handled easily and quickly by this 31,450 pound motor grader, powered by a 195 h.p. General Motors diesel engine.

PERFORMANCE!

An Allison Torque Converter protects the unit from shock loads while a full power-shift transmission — WITHOUT CLUTCH — permits quick shifts under full load without interrupting power flow from engine to load. A tail shaft governor automatically adjusts engine RPM to meet any load condition, at any speed set by the operator. Power sliding moldboard is standard equipment.

PROFIT!

These power and performance features have been combined to increase the working capacity of the 5D-190 and reduce costly down-time. With this motor grader it is possible to move more material, with fewer passes. This increased working capacity will add more profit to every job.

For more information write for Huber-Warco 5D-190 literature — Bulletin HWG-508 and Bulletin HWG-510.



For More Details — See Your Huber-Warco Distributor

SEE YOUR NEAREST HUBER-WARCO DISTRIBUTOR

HUBER WARCO

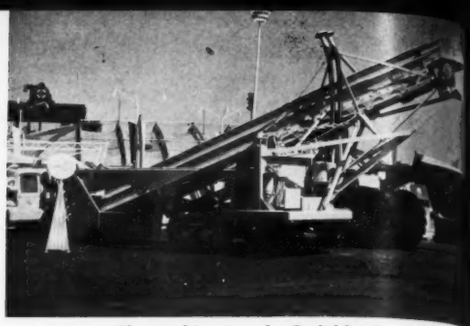
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MARION, OHIO, U. S. A.
Road Machinery
CABLE ADDRESS: HUBARCO

ROAD ROLLERS • MOTOR GRADERS • MAINTAINERS • GRINDERS

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On this 12-foot-wide lane of mock divided highway, a Vibro-Tamper demstrates crushed-stone compaction. Behind it, a Blaw-Knox bituminous paver finisher lays an asphalt-mix pavement.

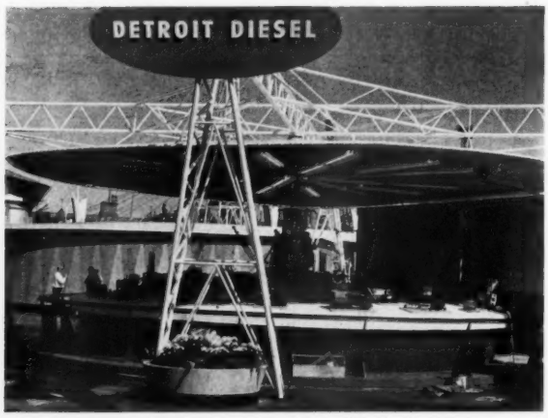


The combination of a Euclid loader and a TC-12 tractor can excavate, load, and haul up to one ton of earth per second. Euclid bottom-dumps usually work with the loader.

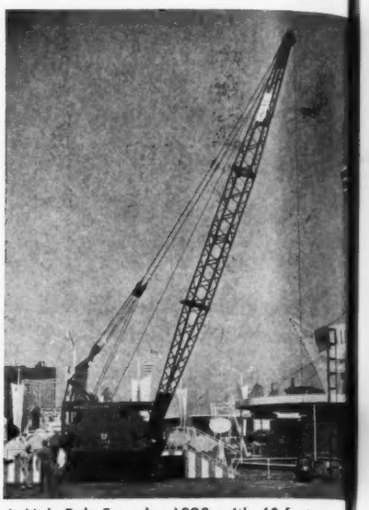
General Motors' Powerama—a world's fair of power



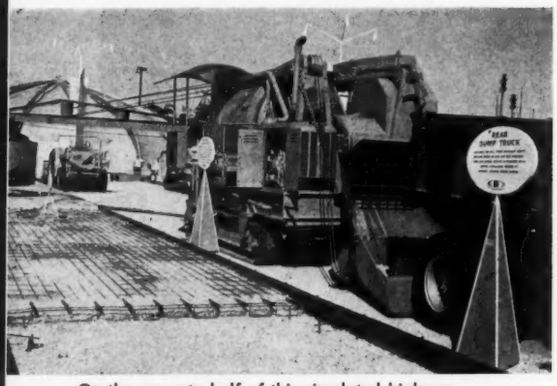
Each unit in the roadbuilding exhibit was stopped in a typical position to show the particular job it performs. In this grading work, a Bay City dragline with a Page bucket is loading a Euclid 91FD rear dump powered by a GM 219-hp 6-cylinder engine.



Commemorating General Motors' 100 millionth horsepower engine is the gold-plated unit in the center of this 30-foot-diameter carrousel. Scale models of roadbuilding and construction machinery ride the turntable as Detroit Diesel's salute to manufacturers using GM diesel power in their equipment.



A Link Belt Speeder LS98 with 60-foot boom is about to lift an Eagle Iron Works 8,000-pound breaker ball. The crane is equipped with an Allison Torqmatic converter for easy maneuvering. Visitors operated the unit at the Allison exhibit.



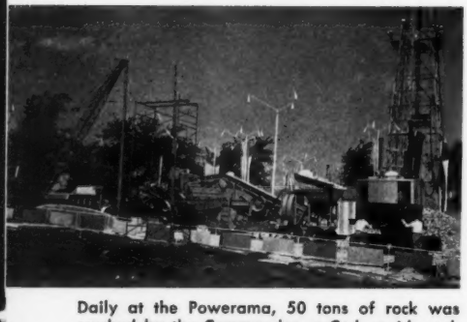
On the concrete half of this simulated highway-construction job, a GMC 663-47 batch truck with a Heil body backs up to the skip of a Koehring 34E twinbatch paver powered by a GM 143-hp 4-cylinder diesel. Welded wire fabric reinforced the slab laid between two rows of Heltzel forms.

General Motors Corp., titan of American industry, put on a free show in Chicago last month, giving the public a good look at diesel-powered equipment in action. Ten GM divisions staged this 26-day Powerama on a 23-acre site along South Lake Shore Drive, adjacent to Soldier Field. A World's Fair of Power, with more than 250 exhibits, portrayed the dramatic contributions of diesel power to America's industrial economy and also celebrated the production, this year, of General Motors' 100 millionth diesel horsepower.

According to GM president Harlow H. Curtice, it took General Motors 22 years to produce a total of



The world's largest dump truck, a Euclid 50-ton rear-dump, was converted into a swimming pool on wheels and shown at the Euclid exhibit. Divers plunged into the water from a platform mounted on the truck cab, while models floated around on a giant inner tube.



Daily at the Powerama, 50 tons of rock was crushed by the Commander, a Cedarapids rock plant with a capacity of 200 tons of 1-inch stone per hour. A Lima shovel, right, and a Unit crane handled the rock and stone.



All stages of highway construction are strung out within this 60 x 350-foot enclosure. Exhibited Euclid earthmovers and other units with GM Detroit Diesel engines represented practically every type of equipment used in highway construction.



An Oliver Super 99 tractor plowed a plot of ground 13 times a day to determine the effect of repeated plowings. The test also demonstrated soil blending, aerating, and fill-compacting methods in earth-embankment work.

GM's Chicago display included diesel engines, earthmoving and road-building machines, trucks, and torque converters

100 million horsepower in this type of engine. "Ten years from now—in 1965," he said, "General Motors will have produced its second 100 million diesel horsepower".

The industrial tycoon, at a press conference preceding the opening of Powerama, foresaw a great expansion in the road machinery industry



Phil A. Gaglardi, Minister of Highways, Victoria, B. C., Canada, presents one of his country's native salmon to Harlow H. Curtice, General Motors president, on the opening day of the GM Powerama.

"both because of market potential and because of forward strides in product development". Curtice also stated that "application of the torque-converter transmission, a General Motors development, to off-the-road vehicles represents a tremendous advance in the effective use of available horsepower. We now have newly designed heavy-duty vehicles, already working on road-building projects, that are able to move dirt twice as fast as it has ever been moved before. This means a substantial reduction in cost to the point that a yard of dirt can now be moved for less money than ever before in modern history."

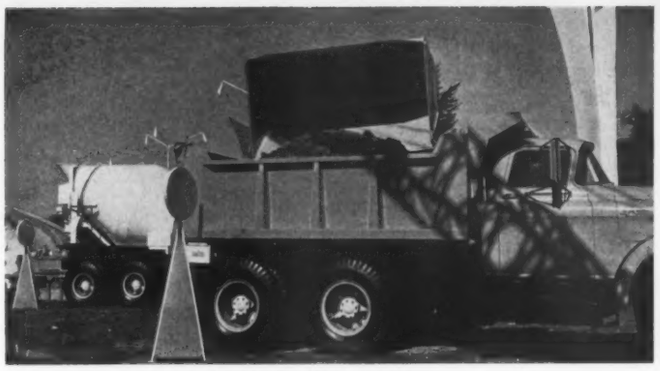


Donald V. Buttenheim, publisher of CONTRACTORS AND ENGINEERS, quizzes Ralph E. Keidel, Euclid sales-promotion manager, about the market for 50-ton Euclid end-dump trucks like the one behind them.

GM divisions participating in the Powerama included Allison, Buick, Cleveland Diesel Engine, Detroit Diesel Engine, Diesel Equipment, Electro-Motive, Euclid, Fabricast, Frigidaire, and GMC Truck & Coach.

The Powerama made the man in the street realize that General Motors is more than a company that makes passenger cars and trucks. He saw demonstrated the varied modern applications of GM diesel and other equipment in a complete road-build-

(Continued on next page)



In this section of the roadbuilding exhibit, a GMC dump truck with an Anthony body is filled by a Pettibone-Mulliken loader. To the rear, a Smith truck mixer delivers concrete for a culvert.

If this Isn't the WORLD'S BATCHING RECORD ...We'd like to know it!





With a BUTLER Roadbuilders Plant as the forward passer on the team, the Sargent Construction Company — on the Ohio Turnpike — laid 4368 lineal feet of concrete pavement 24 feet wide and 10 inches thick — *in one 16 hour day.*

The BUTLER Plant dished up that volume of concrete in 2424 batches.

Slide rules, gentlemen! That's at the rate of over 2½ batches per minute. And mind you, not just for one minute, not for just 10 minutes — but steadily for 16 long, gruelling hours.

The BUTLER Plant tossed these 2424 passes to two 34E pavers working in tandem. Even the large #44 elevator sweated to keep pace with BUTLER (and Sargent) batching.

Want more statistics?

21,798 bags of cement batched in 16 hours.
3,148 tons of stone
1,695 tons of sand

Moral? If you want to establish World's Records in production and profits — go BUTLER!



Want to find out about unbeatable portability in BUTLER Roadbuilders Plants? Just send a postcard for Bulletin 205. Savings of hours of downtime during moves often spell the difference between a loss or a handsome profit. Send that postcard — today.

BUTLER BIN COMPANY
971 BLACKSTONE AVE. • WAUKESHA, WISCONSIN

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CONSTRUCTION CAMERA

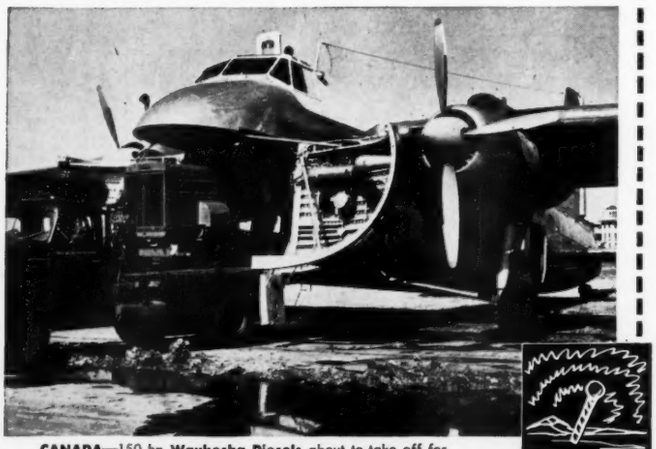


Within days after flood waters receded following hurricane Diane, northeastern states started the tremendous job of reconstructing roads, bridges, and public works. This DW21 tractor and scraper dump fill in the streets of Monson, Mass., where 52 bridges and much of its 115 miles of road were damaged. Just northeast of Monson, on U. S. 20 near Brimfield, Hill Construction Co., Millbury, Mass., teams with the U. S. Army Corps of Engineers and the Massachusetts Department of Public Works, using a Caterpillar D8 tractor, above, to repair a one-mile stretch ripped to a 20-foot depth by the floods.

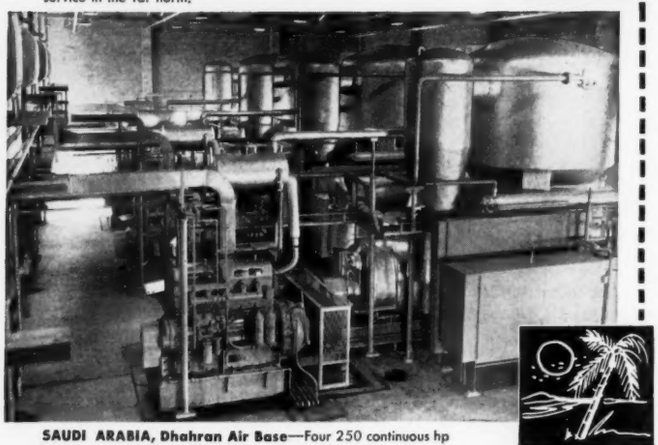


from the Canadian Arctic---

to Saudi Arabia----------



CANADA—150 hp **Waukesha Diesels** about to take off for service in the far north.



SAUDI ARABIA, Dhahran Air Base—Four 250 continuous hp **Waukesha Diesels** power Cleaver-Brooks distillation units producing 200,000 gal. of potable water daily.

● Power packed, fast and smooth—with built-in stamina and reliability for every industrial service, in any country or climate —Waukesha Normal or Turbocharged Diesels, Gas, or Gasoline Engines—up to 1135 hp. Waukesha Motor Company, Waukesha, Wis., New York, Tulsa, Los Angeles. Get Bulletin 1079.

WAUKESHA *Diesels*

290

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(Continued from preceding page)

ing exhibit; world's largest dump truck; tractors and scrapers; a rock-crushing plant; a saw mill; a cotton gin; oil drilling rigs; a plowing demonstration; a revolutionary lightweight train; a U. S. Navy submarine and other marine craft; the kitchen of tomorrow; seven experimental "dream" cars and a "dream" truck; a gas turbine-powered XP-21 Firebird car; and a fighter plane, tanks, guided missiles, and other weapons for defense.

Stage shows of the exhibits were presented four times daily in an outdoor theater. This "More Power to You" show also featured elephants, clowns, aerialists, trained horses, and pretty girls.

Road building exhibit

One feature of the Powerama portrayed a "highway under construction". Hundreds of truckloads of dirt were hauled in and dumped in an enclosure 350 feet long × 60 feet wide to provide the roadbed. A score or more of road-building machines were spotted along the road section, which ranged from rough terrain at one end to finished pavements at the other. These machines represented practically every type of equipment used today in U. S. highway construction. Each unit was "stopped" in action to show the particular job it performs.

Units "at work" preparing the road

STANDS UP TO SEVERE USE *and* ***even abuse***



One word describes a Hayward — **ruggedness.** Yes, it's as tough, strong, sturdy as a bucket can be — and even more so. Extreme simplicity, little if any upkeep, high operating efficiency! Details on request. Write! THE HAYWARD COMPANY. 50 Church Street, New York 7, N. Y.

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famous for performance since 1888

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- Cuts loss of valuable time!
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Special Dixie designs teach safety and caution!

DIXIE PORTABLE WATER CARRIER



Keeps Water Cool for Hours! Available with dispenser for Dixie Cups of your choice. Use in central location or carry with shoulder straps.

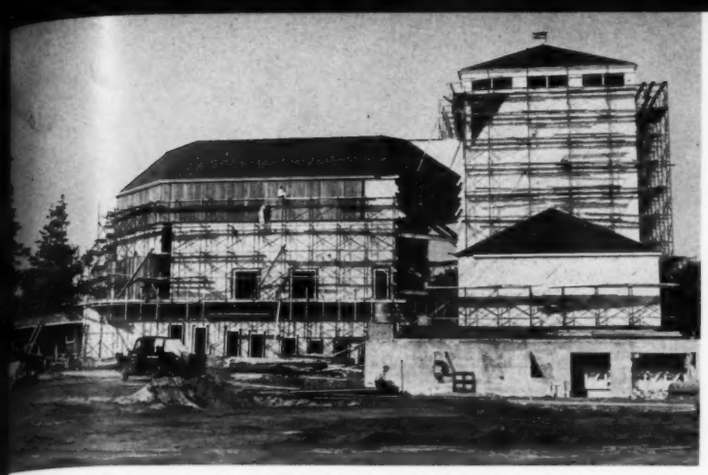
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DIXIE CUP COMPANY, Easton, Pa.

Other plants at: Chicago, Ill., Darlington, S. C., Ft. Smith, Ark., Anaheim, Calif., Brampton, Ont., Canada

"DIXIE" IS A REGISTERED TRADE MARK OF THE DIXIE CUP COMPANY

For more facts, circle No. 335



Towers of Waco scaffolding, first tied to the steel-rib skeleton then to the wood framing of the American Shakespeare Festival Theater in Stratford, Conn., make it easy for workers to reach all parts of the structure during the building of this modern version of London's famous 16th-century Globe theater.

David Whitman Photo



A loading assist is given to an International 18½-cubic-yard Payscraper by an International TD-24 tractor during grading operations for a new 8,000-foot runway at O'Hare Field, Chicago, Ill. Rock Road Construction Co. of Chicago is moving 600,000 yards of dirt in preparation for paving.

HOW TO HANDLE WET JOBS

RELOCATION OF HOGAN'S CREEK

Jacksonville, Florida

Contr: Duval Eng'g & Cont'g Co.



LARGE VOLUME DRAINED AT VERY LOW FUEL COST

EXCAVATION ON this job was 15 ft deep (see photo) and ground water had to be lowered 10 ft in difficult soil (very fine sand with clay lenses.) How would you have estimated fuel requirements, figuring approximately 400 ft of header-line perimeter?

• Actually, one diesel-powered Griffin pump, working continuously 'round-the-clock, consumed only 35 gal of fuel each 24 hrs, even though on jobs of comparable scope, the average diesel pump will usually eat up anywhere from 40% to 80% more than this quantity. Thus the every-day savings to the contractor were appreciable.

• Another interesting feature was the use by Griffin engineers of a new type slip-on swing joint (see photo) to speed installation of the wellpoints. Any wonder contractor termed the job "100% success!"

GRIFFIN

WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

For more facts, circle No. 336

(Continued from preceding page)

grade included an Ingersoll-Rand rotary drill with its air compressor powered by a GM 219-hp 6-cylinder diesel: a Bay City dragline with a Page bucket loading a Euclid 91 FD rear-dump powered by a GM 219-hp 6-cylinder diesel; a Pettibone-Mulliken loader, powered by a GM 145-hp 4-cylinder diesel, which filled a GMC truck equipped with an Anthony dump body; a Euclid C-6 crawler tractor, a new model shown for the first time; a Euclid S-12 scraper; and a LeTourneau-Westinghouse wheel-tractor bulldozer powered by a GM 219-hp 6-cylinder diesel.

A Buckeye ditcher, powered by a GM 65-hp 2-cylinder diesel, dug a trench for a concrete culvert crossing the highway while concrete from a Smith mixer on a GMC truck was

(Continued on next page)

For more facts, circle No. 338→



A Lincoln speeds repairs... *to cut costly downtime*

Contractors count on Lincoln "Shield-Arcs" to keep equipment operating . . . at a profit.

They choose Lincolns because:

1. **"Shield-Arcs" are reliable.**
2. **"Shield-Arcs" make good welds.**
3. **Operators like "Shield-Arcs".**



Write for Bulletin 1337 on Lincoln "Shield-Arc" DC Engine-Driven Welders.

THE LINCOLN ELECTRIC COMPANY

Dept. 5305 • Cleveland 17, Ohio

THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT

For more facts, use Reader-Reply Card opposite page 18 and circle No. 337

Specify kotal to obtain a quality controlled, superior, plant mix for stock pile or immediate use.



ADVANTAGES:-

- Tough
- Durable
- Stable
- Cohesive
- All weather use
- Resists stripping
- Easy to use
- True economy

ALKOTE

Superior coating and anti-stripping agent—use it in surface treatment,—penetration,—mixed in place,—travel plant.



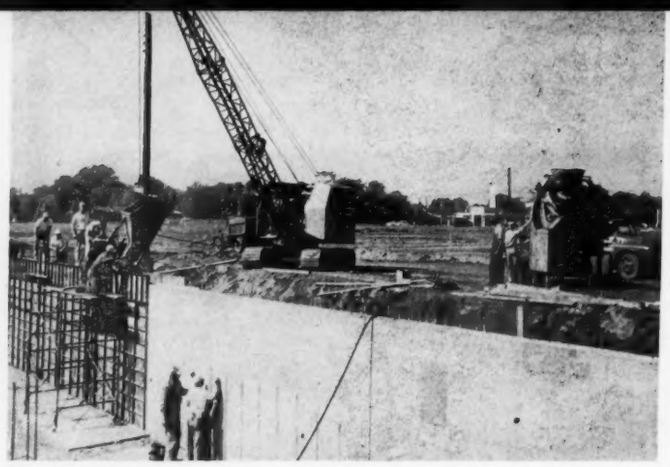
Write for detailed facts about KOTAL and ALKOTE

kotal COMPANY

300 SPRINGFIELD AVENUE
SUMMIT NEW JERSEY

PROCESS BITUMINOUS MIXES

CONSTRUCTION CAMERA



Basement walls for a new high school in Terra Haute, Ind., are being poured in Universal Uni-Form panels that require no bracing on the inside face. Contractor E. E. Schnitzius Co., Inc., Indianapolis, Ind., uses concrete delivered to the job in a Rex Moto-Mixer.



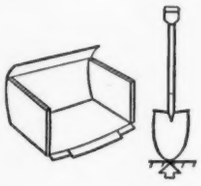
Excavation of rock and conglomerate along a river bank is handled by a Bucyrus-Erie 38-B 1½-yard shovel as reconstruction work gets under way on a section of highway between Bridgeport, Calif., and Wellington, Nev. Scott, Stecker & Croft Burbank, Calif., is doing the job for the State of California.



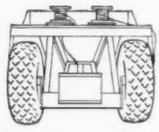
Outstanding, New Allis-Chalmers Earth-Moving Team: Model 315 scraper, with 20-yd heaped capacity, pulled by an HD-16 Tractor (150 net engine hp with torque converter drive, 131 belt hp with standard transmission drive).

Look At The Dirt-Moving Advantages of Allis-Chalmers Scrapers

Digs in Fast. Curved and offset cutting edge on Allis-Chalmers scrapers concentrates initial digging effort at center for faster penetration — as with a round-end, curved-bottom spade.

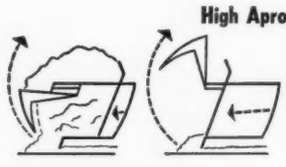


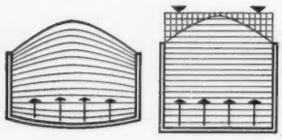
Hauls, Maneuvers Easily. Big, low-pressure tires provide maximum flotation. A short wheel base permits scraper to turn within its own length.



Loads with Less Resistance. Low, wide bowl reduces loading time, requires less power.

High Apron Lift Prevents Jamming. Apron lift is high — as much as 102 in. in the Model 315. Prevents any possibility of material jamming.

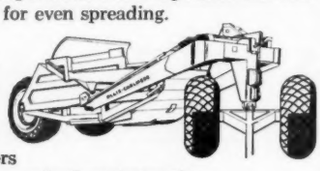




Heaps Loads with a Minimum of Spillage. Combination of deep center cut and correct angling of cutting edge loads the scraper with minimum spillage. "Boiling" action fills voids, produces automatically well-heaped loads.

Dumps with Positive Ejection, Spreads Evenly. Ejector forces load forward, wipes bowl clean. Operator can control rate of discharge for even spreading.

Ground Clearance. Front-running gear has ample clearance. High carrying position of bowl enables Allis-Chalmers scrapers to clear ruts, windrows and other obstructions.



Hugs the Ground for Stability. The wide, low bowl keeps scraper center of gravity low . . . wide wheel tread adds stability for working on slopes, grades, or rough terrain.

Model 315	Model 108	Model 106	Model 44*	Model 24*
15 yd struck 20 yd heaped	8.4 yd struck 11 yd heaped	6.1 yd struck 7.5 yd heaped	4 yd struck 4.7 yd heaped	2 yd struck 2 yd heaped

*Hydraulically controlled

COMPARE Allis-Chalmers scrapers with others, feature by feature, dollar for dollar, and you'll see why they are your best buy in every way.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 339

(Continued from preceding page)

chuted into the wooden culvert forms.

A Seaman-Andwall Pulvi-Mixer, an Austin-Western Super 88 road grader powered by a GM 102-hp 3-cylinder diesel, and a Huber-Warco 5D-190 motor grader powered by a GM 219-hp 6-cylinder diesel were also in the road-grading spread. One of the graders fine-graded ahead of a lane of asphalt pavement, the other ahead of a concrete pavement. Though the lanes were only 12 feet wide, they simulated a modern divided highway, one half constructed with a flexible-type pavement and the other half with a rigid-type pavement.

On the bituminous side, a Vibro-Tamper powered by a GM 102-hp 3-cylinder diesel was compacting an 11-inch course of loose crushed stone base. The vibrator-type tamper-compactor, with its six shoes, compacted the aggregate to an 8-inch depth.

Next, a Blaw Knox bituminous



- Keeps joint sealed under severest conditions of traffic, temperature
- May be pumped directly into joint from melting kettle



Nothing equals the joint sealing performance and protection of Servicised Para-Plastic. Stable, constant in volume, Para-Plastic is a rubberized asphalt compound that maintains bond at normal and sub-zero temperatures. Field proven — widely used, it's the most effective joint seal on the market.

Write for details on Para-Plastic and simple, low cost application method.

SERVICISED PRODUCTS CORPORATION
6051 W. 65th ST., CHICAGO 38, ILL.

For more facts, circle No. 340



Handling and driving 26-foot timber piles for the extension to the Bowery Bay Sewage Treatment Works in Astoria, N. Y., are two Lorain Moto-Cranes. This two-year $12,500,000 project will triple the capacity of the plant, enabling it to handle more than 100 million gallons of sewage daily.



Reconstruction of the lock on the Green River at Calhoun, Ky., part of a $15 million federal program designed to aid industrialization of this area, goes forward as river waters are held in check by the cofferdam at right. A Lima crane, background, handles Blaw-Knox forms for the 600-foot-long lock wall.

paver-finisher, with a GM 95-hp 4-cylinder diesel, laid the asphaltic mix, which was compacted by a Buffalo-Springfield 3-wheel roller powered by a GM 95-hp 4-cylinder diesel.

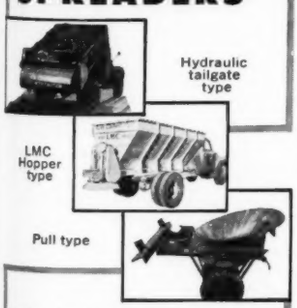
On the concrete side of the highway, Heltzel steel forms were pinned down to receive concrete mixed in a Koehring 34E Twinbatch paver powered by a GM 143-hp 4-cylinder diesel. Dry batches were hauled to the paver in a GMC 663-47 rear-dump truck equipped with a Heil body. Welded wire fabric was not overlooked in reinforcing the slab.

More Euclid

In addition to the equipment at the road-building exhibit, Euclid had its full line of machines on display at a separate section of the Powerama. This array of the light-green units included the big TC-12 crawler tractors, one of which was hooked up with a Euclid loader capable of load-

(Continued on next page)

***Before You Buy— Better See What* FLINK Offers in ICE CONTROL SPREADERS**



Check the Features on The New 1956 FLINK Ice Control Spreaders

Sold and serviced through reputable road equipment distributors

Dept. 5508

THE Flink co. **FLINK COMPANY** STREATOR, ILLINOIS

For more facts, circle No. 341



HERE'S A MANEUVERABLE COMBINATION that underground utility construction men can depend on for fast repair operations. It's the portable Chicago Pneumatic "Power Vane" Rotary Compressor teamed up with two hard-hitting CP Demolition Tools!

CP WHEELS INTO ACTION... WHEN AN EMERGENCY STRIKES

Efficient CP Rotaries afford thousands of hours of trouble-free operation with minimum attention. Compact and light in weight, these easy-to-tow compressors are available in capacities of 125, 210, 365, 600 and 900 cfm. CP Demolition Tools afford maximum penetration... their responsive throttling action and easy handling qualities are ideal for emergency work. Capacities range from the CP-111 (25 lb. class) to the CP-117 (80 lb. class). For more information call your nearby CP dealer or write to Chicago Pneumatic Construction Equipment headquarters today! *Chicago Pneumatic Tool Co., 8 East 44th St., N.Y. 17.*

Chicago Pneumatic

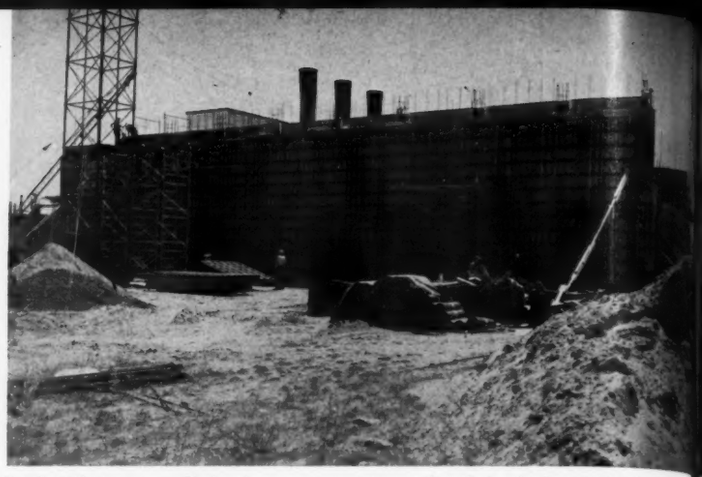
PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES • ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

For more facts, use Reader-Reply Card opposite page 18 and circle No. 342

CONSTRUCTION CAMERA



From its perch on the banks of the St. James River at Dutch Gap, Va., this Manitowoc 4500 dragline reaches far out into the water for a bucketfull of sand and gravel. The rig, dredging up aggregate from the river bottom for Southern Materials Co., Inc., Chester, Va., fills a bottom-dump Euclid.



Reinforced-concrete walls for the new steam power plant being built at Uplands, Ontario, Canada, rise to their full height of 50 feet as work enters its final stages on the Canadian Defense Construction, Ltd., facility. Ross-Meager, Ltd., general contractor on the project, is using the Rocform system of forming.

HIGHWAY

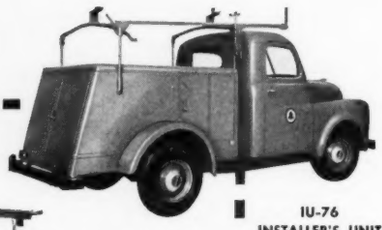
LINE CONSTRUCTION AND MAINTENANCE EQUIPMENT



HC EARTH BORING MACHINE



MW-128 UTILITY TRUCK BODY



IU-76 INSTALLER'S UNIT



PWD-2 CABLE REEL TRAILER

Highway line construction and maintenance equipment — designed for safety, dependability, economy and long, trouble-free service life — the most completely engineered equipment available today.

That's the reason Highway equipment is more widely specified and used than *any other*. Highway's complete, experienced engineering service and extensive production facilities mean the right solution to *your* problems too! Call, wire or write for full information and specifications today.

HIGHWAY TRAILERS

HIGHWAY TRAILER COMPANY

HEADQUARTERS: EDGERTON, WISCONSIN

MANUFACTURERS OF:

Commercial Trailers • Trailerized Tanks and Dry Bulk Haulers • Public Utility Bodies • Earth Boring Machines • Pole and Cable Reel Trailers • Winches • Power Take-Offs • Service Accessories

SALES AND SERVICE IN PRINCIPAL CITIES

For more facts, use Reader-Reply Card opposite page 18 and circle No. 343

(Continued from preceding page)

ing and hauling up to 1 ton of earth per minute. The smaller C-6 crawler tractor was shown for the first time, along with the new overhung engine scrapers. Rear and bottom-dump hauling units were represented.

Another unique feature of the exhibit was a Euclid 50-ton rear dump—the world's largest dump truck—that had been converted into a "swimming pool". Divers plunged into the water from a platform mounted on the truck cab.

At the Allison Division

A simulated cab of the 50-ton Euclid truck was on display at the Allison Division exhibit so that visitors could "drive" the big unit 300 feet uphill under a heavy load, using first a mechanical transmission, then a modern hydraulic transmission. The simulated haul demonstrated the increased ease of operation made possible with Allison Torqmatic drives.

The advantages of the Allison Torqmatic converter over the friction-clutch method of operating a crane was also part of the Allison display. A Link-Belt Speeder LS 98 with a 60-foot boom was fitted out with an Eagle Iron Works 8,000-pound N1-Hard breaker ball. Spectators operated the crane, moving the ball up and down by two methods—first by using a friction lock-up clutch installed in an Allison converter, then by using only the TCDA-445 converter. The amateur operators had trouble maneuvering the ball with the friction clutch, but had fingertip control over the 8,000-pound ball when using the converter.

Rock-crushing exhibit

Each day 50 tons of Niagaran limestone rock, obtained from quarries in the Chicago area, was put through The Commander, a Cedarapids portable rock-crushing and screening plant. The crusher, is powered by a GM 300-hp Series 6-110 diesel engine, and would provide 200 tons of 1-inch rock per hour. At the exhibit the unit was reducing the quarry material to ¾-inch size. It is equipped with a 30-inch feeder, a 10×36-inch jaw

(Concluded on next page)

Turnpike

CONTRACTORS CHOOSE McCARTHY AUGER DRILLS



• Where the going is tough—on the Pennsylvania Turnpike, New York Thruway, West Virginia Turnpike and elsewhere—contractors choose rugged, powerful McCarthy Drills.

On the Ohio Turnpike, near Windham, this McCarthy Vertical Auger Drill drills 6-inch blast holes to a depth of 18 feet at the rate of 22 holes in 8 hours.

Operators like the great new McCarthy. It is rugged, mobile and dependable. In any earth or rock formation consisting of compacted sand and gravel, hardpan, shale, and most sandstone formations, the McCarthy is faster than any other.

Easy-to-move, easy-to-set-up McCarthy Verticals operate on gasoline, diesel or electrical power units. They require only a two-man crew.

Get the facts about the McCarthy—"choice of the turnpike contractors"—and see for yourself how faster drilling and dependable performance combine to give you bigger profits.

SALEM

DRILLING EQUIPMENT SINCE 1901

THE SALEM TOOL CO.

806 SOUTH ELLSWORTH AVE.

SALEM, OHIO . U.S.A.

For more facts, circle No. 344



Finishing an average of one mile of 4-foot-wide and 8-inch-deep highway widening trench daily, this Gar Wood-Buckeye Hi-Way widener tackles a 27-mile job on the Airline Highway between Baton Rouge and New Orleans, La. T. L. James & Co., Inc., Ruston, La., is doing the work under two contracts totaling $847,107.



The last link of a 55-mile superhighway from Thomasville by-pass to Efland, N. C., is prepared for paving as Jaeger spreaders lay stabilized aggregate for the base course. The dual-lane divided highway, a relocation of U. S. 29 and 70 in this part of the state, is scheduled to open this fall.

(Continued from preceding page)

crusher, a 30×25-inch roll crusher, and a 48-inch×10-foot horizontal vibrating screen. The jaw crusher is for large rocks and the roll crusher for medium-size rocks. Sizing is done by repeated crushing and screening.

A Lima 1-yard shovel, with a GM 143-hp 4-cylinder diesel, dumped quarry material into the feeder. A Unit crane, with an Owen clamshell bucket and powered by a GM 143-hp 4-cylinder diesel, cleaned up around the output side of the crusher.

Most of the construction machinery displayed at the Powerama was powered by Series 71 GM diesel engines in various horsepower sizes. The next most popular was the Series 51 diesels. Several 600 Series diesel-powered GMC trucks were used in the road-building display and in the Powerama stage spectacle.

Display trucks

One of 75 new trucks recently ordered by Chicago for its trash and garbage-collection operations was also shown. This GMC model DF669-47 is powered by a GM 4-71 diesel engine developing 150 horsepower. It is equipped with a Roto-Pac 20-yard-capacity body made by City Tank Corp., Corona, N. Y. In ordering the new trucks, Chicago became the first major city to obtain a large number of diesel-powered trucks for sanitation work. Previously, gasoline models were used for this type of operation.

Land plowing

To determine the effect of repeated plowing of topsoil, a plot of ground was plowed 338 times during the 26-day show to create soil conditions not heretofore available for observation. An Oliver Super 99 rubber-tire tractor, powered by a GM diesel, pulled an Oliver 6-bottom, 16-inch moldboard plow that turned over the ground 13 times a day. It plowed a swath 8 feet wide and 9 inches deep at a rate of 300 feet per minute. Though primarily of agricultural interest, the plowing demonstration was followed closely by earthmoving people since the same principle is employed in soil blending and aeration, and compacting earth fill. THE END



Yes, MM Engines are built and equipped to order

FURNISHED TO YOUR SPECIFICATIONS IN LOTS OF 1 OR 100!

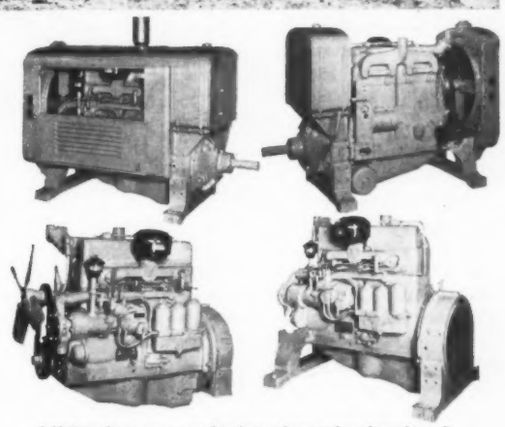
You get power adaption that fits your specifications more readily with Minneapolis-Moline engines. Why MM? Because, as an independent engine builder, no single sales outlet dictates MM engine design—and MM works in such a big variety of power applications.

To meet a wide range of basic requirements MM engines have large displacement for high torque at moderate rpm. Extra high compression and high turbulence combustion combined with high volumetric efficiency provide outstanding performance.

For these reasons MM units are ready to go when equipped with specified operating accessories. You eliminate major auxiliary unit purchases to adapt engine characteristics to meet momentary high load demands. Further long run benefits are low fuel consumption and low maintenance that total up to low cost production.

Every-day experience in supplying a wide range of unit requirements enables MM to maintain customary high quality in single or small lot quantities at reasonable cost.

A high degree of standardization results in high production parts that provide precision fits and permit MM to schedule parts for special units in large quantity, assuring early delivery and customer service.



MM engines are completely engineered and equipped for gasoline, LP gas, natural gas, or distillate fuels. Sizes range from 206 cu. in. portable units to 1600 cu. in. stationary engines and are available for fan to flywheel application or completely enclosed leg mounted installations. MM also builds a line of industrial Diesel power units: Sizes—283-, 425-, 605 cu. in.

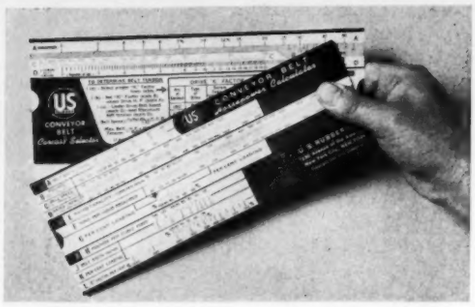
Standard equipment includes vacuum crankcase ventilation, thermostat controlled bypass cooling, packaged water pump, built in variable speed governors, enclosed gear driven oil pump, and oversize full-flow oil filters (shunt-type filters are provided exclusive on MM Thermo-Clad units).

Send details on your application for examples of MM built-to-order packages for original or replacement needs. Engineering service available for pumps, hoists, crushers, generators, shovels, ditchers, cranes, compressors, feed mills, saw mills, planing mills and similar installations. When you want dependable performance year after year from your engine, you want an MM Industrial Power Unit.

INDUSTRIAL DIVISION

MINNEAPOLIS-MOLINE MINNEAPOLIS 1, MINNESOTA

For more facts, use Reader-Reply Card opposite page 18 and circle No. 345



These slide rules developed by the United States Rubber Co. are said to cut conveyor belt design from 3 hours to 10 minutes.

Slide rules simplify conveyor belt design

■ Engineeing data which formerly required 40 notebook pages for exposition is said to be incorporated in two simple slide rules developed by the United States Rubber Co. for use in designing conveyor-belt installations. According to the manufacturer, the two slide rules cut typical design time from 3 hours to 10 minutes.

One of the rules is a horsepower calculator, and the other is a belt-fabric selector. Five settings on the horsepower calculator will give the horsepower needed for 98 per cent of conveyor-belt systems. A maximum of seven settings will yield the drives for level, incline or decline, manually operated tripper, and self-tripper systems.

The carcass selector will pick the right belt fabric for any system, as well as the maximum and minimum number of plies for proper troughing and minimum pulley diameters for the entire system. Only two settings of the carcass rule are necessary for selecting the fabric, once the horsepower is known.

The slide rules are part of a conveyor-belt construction kit with which it is possible to make over 2,000 different sample conveyor belts.

For further information write to the United States Rubber Co., Rockefeller Center, New York 20, N. Y., or use the Request Card at page 18. Circle No. 69.

Hydraulic engineering is subject of new text

A basic textbook for senior civil engineering students, "Elements of Hydraulic Engineering" has been published by McGraw-Hill Book Co. Written by Ray K. Linsly, Jr., professor of hydraulic engineering, and Joseph B. Franzini, assistant professor of civil engineering, both of Stanford University, the text presents hydraulic engineering as a unified field.

The 528-page text is divided into three parts. Part I treats of the hydrological and legal aspects common to all hydraulic projects. Part II discusses the structures required for hydraulic projects and the elements of engineering economy. Part III deals with such special problems as water supply and sewage, flood control, irrigation, and hydroelectric power development.

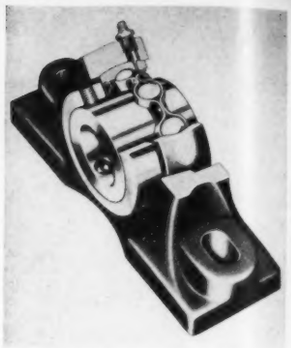
"Elements of Hydraulic Engineering" may be purchased for $9.00 from McGraw-Hill Book Co., 330 W. 42 St., New York 36, N. Y.

For more facts, circle No. 346→

New ball-bearings have increased load capacity

■ A new series of ball bearings designed for medium-duty service has been added to its line by the Dodge Mfg. Corp., Mishawaka, Ind. While offering all the features of the service-tested Dodge SC ball bearings, the new SCM bearings provide more load-carrying capacity and are available in larger shaft sizes. The new line includes both ball-bearing pillow blocks and ball-bearing flange cartridge mounts.

The semi-steel outer housing of Dodge SCM pillow blocks provides



The new Dodge SCM ball-bearing pillow block for medium-duty service.

NEW SUPER "99"

DRIVES AND STEERS





GIVES YOU "CONTROLLED TRACTION" MAXIMUM BLADE POWER PLUS TWICE THE MANEUVERABILITY

Whatever the job . . . whatever the ground conditions . . . your best buy in its class is the complete Power Grader, the new, big Super "99." With exclusive All-Wheel Drive for 30% greater Power-at-the-Blade; exclusive All-Wheel Steer for 100% greater Maneuverability, and exclusive "swing that rear-end" Controlled Traction for moving more material, farther and faster, the new Super "99" Power Grader with its six driving and steering wheels will outperform ordinary front steer motor graders, definitely and completely.







greater strength together with a streamlined appearance. The spherical outer race of the ball-bearing inner unit fits accurately into the spherical seat in the semi-steel housing for complete self-alignment.

Metallic-backed synthetic seals are mechanically anchored in position and will not blow under grease gun pressure. A locking pin prevents rotation of the outer bearing race while allowing full alignment. The bearing is securely locked to the shaft by means of two set screws which go through the collar at 120 degrees.

Dodge SCM ball bearings are completely assembled, factory adjusted, pre-lubricated and ready to mount on the shaft.

For further information write to the company, or use the Request Card at page 18. Circle No. 52.

Folder on metal pipe

■ A new folder from Armco Drainage & Metal Products, Inc., tells how proper drainage structures stop trouble before it starts. The company claims that its Multi-Plate and corrugated metal pipe has flexible strength to withstand both live and dead loads, strong joints to withstand transverse pressures and soil movement, beam strength to resist soft spots in the foundation, and all-metal construction to absorb frost action.

To obtain Folder CMS-9555 write to Product Information Service, Armco Drainage & Metal Products, Inc., Middletown, Ohio, or use the Request Card at page 18. Circle No. 196.

Clean burning salamander

■ The Hy-Lo oil-burning salamander manufactured by Scheu Products Co., P. O. Box 262, Upland, Calif., is recommended for efficient spot and space heating, both indoors and out. Easily moved and simple to operate, the salamander features a design resulting in clean operation. A patented return gas stack takes a predetermined amount of the products of combustion back to the bowl, producing better combustion and eliminating carbon.



The Hy-Lo salamander produces 70,000 to 140,000 Btu per hour, using one half to one gallon of any good grade fuel oil. It lights with a match and will burn from 10 to 20 hours on one filling.

For further information write to the company, or use the Request Card at page 18. Circle No. 7.

Triplex tamper compacts deep narrow ditches

■ A tamping tool designed to compact the backfill in narrow ditches has been placed on the market by Gunderson-Taylor Machinery Co., 1237 Shoshone St., Denver, Colo. Using the new GT-5-D Triplex ditch tamper, one worker can quickly compact backfill to the required density while safely working on ground level.

The ditch tamper has newly designed handlebars which allow the operator to work in trenches as narrow as ten inches and as deep as five feet.

For further information write to the company, or use the Request Card at page 18. Circle No. 61.



99A-W POWER GRADER

RON ALL 6 WHEELS

The new Super "99" is the result of a combination of advanced engineering and research, skilled manufacturing and years of practical field experience. Four driving, steerable wheels at the rear team up with the live climbing power of Austin-Western's famous front truck to provide the ultimate in powered flotation.



Austin-Western
Power Graders · Motor Sweepers
Road Rollers · Hydraulic Cranes

BALDWIN BLH LIMA-HAMILTON
Construction Equipment Division

Manufactured by
AUSTIN-WESTERN COMPANY
Subsidiary of Baldwin-Lima-Hamilton Corporation
AURORA, ILLINOIS, U.S.A.



A 110-pound slab of Calsi-Crete, a new lightweight building material made of sand, cement, and fly ash, is installed on the roof deck of a factory at Ann Arbor, Mich. The new material is said to have excellent resistance to fire and moisture. For details circle No. 118 on card at page 18 or write to Jackson & Church Co. Division, Norbute Corp., 323 N. Hamilton, Saginaw, Mich.



A giant (one ton) tubeless tire, first of a new earthmover type to be delivered to the field, is installed on a Wooldridge 34-yard scraper at the site of a highway relocation job near Stratton, Ohio. Built by Goodyear, these size 37.5 x 33 monsters have extra-wide base rims for greater flotation. For details circle No. 122 on card at page 18 or write to Goodyear Tire & Rubber Co., Akron 16, Ohio.

IT Costs Less TO Build Better WITH THIS Anco PAIR!

STRONGER . . . ⅞" dia. ANCO Structural Rib Bolts are stronger than ¾" dia. rivets. Shear and bearing values are greater than hot driven rivets. Minimum tensile strength 70,000 lbs. per sq. in.

FASTER . . . easier to install ANCO Rib Bolts and Lock Nuts. No special wrenches, pneumatic equipment, rivet guns or heat required in the field.

CHEAPER . . . just two unskilled men with a hammer and ordinary wrench make an ANCO installation team. No costly replacement of condemned rivets. Less expensive than any other type of bolted construction.

Anco STRUCTURAL RIB BOLTS

Carbon Manganese Steel. Standard A.B.M.A. Button or Countersunk Head. U. S. S. rolled threads. Simply hammer into place and it's ready to accept nut.



Open Hearth Carbon Steel. Guaranteed to break bolt in destruction test. Automatic Locking Feature, of Chrome Vanadium Steel with high percentage of Nickel, is integral part of Nut. Fits Standard Machine Bolts, too.

Anco LOCK NUTS

ANCO Structural Rib Bolts and ANCO Lock Nuts are finished Black, Galvanized, Cadmium Plated, etc. Galvanized to meet A.S.T.M. Specs.—hot dipped and subjected to Preece Tests. ANCO Structural Rib Bolts and ANCO Lock Nuts are Approved and Used in All Types of Steel Construction; Buildings, Bridges, TV and HI-Tension Towers, Oil Refineries, Hangars, etc. ANCO Lock Nuts are also used on Standard Machine Bolts for bolted construction.

WRITE FOR COMPLETE INFORMATION AND PRICES

automatic NUT CO., INC.
Willow Street
LEBANON, PENNSYLVANIA

For more facts, circle No. 347

Reinforced surface for flexible hose

■ Flexaust hose and Portovent ducts are now available reinforced with a vinyl wearstrip, according to a folder from the Flexaust Co., 100 Park Ave., New York 17, N. Y.

Fully bonded over the spiral-wire reinforcement, this wearstrip is reported to greatly reduce wear on the hose or ducts from contact with rough and abrasive surfaces. Dust collection and material handling are among applications where the vinyl wearstrip proves especially helpful, according to the literature.

Prices of Flexaust hose and Portovent retractable ducts with the vinyl wearstrip are given.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 92.

Birmingham
HEAVY DUTY TRAILERS



Model 1250 - FLS. Three-axle standard Birmingham Low Bed Trailer with rolling tailpipe, decked over wheels and with swinging side brackets.

"RUGGED WEAR OVER THE LONG HAUL"

Birmingham Trailers are built rugged for the big loads. There are standard designs and models for all kinds of hauling. Special models are built to order to your own specifications. Standard models 10 to 100 tons capacity. Special models 40 to 265 tons capacity.

See our Distributor or write us direct for details.

Birmingham MANUFACTURING COMPANY, INC.

Main Office and Factory, Birmingham, Alabama, P. O. Box 1351 . . . Phone 53-5496
New York Office, 30 Church St., N. Y. 7, Phone Digby 9-2893

For more facts, use Reader-Reply Card opposite page 18 and circle No. 348

LENKER

AUTOMATIC LEVEL ROD



ELIMINATES ALL COMPUTATIONS IN TAKING ELEVATIONS

AWARDED MEDAL OF MERIT FOR UTILITY
— BY —
FRANKLIN INSTITUTE
— OF —
PHILADELPHIA

Adaptable for all the uses of an ordinary level rod.

For ACCURACY SPEED ECONOMY

Write for circular

LENKER MANUFACTURING CO.
599 Chestnut Street, Sunbury, Pa.

For more facts, circle No. 349



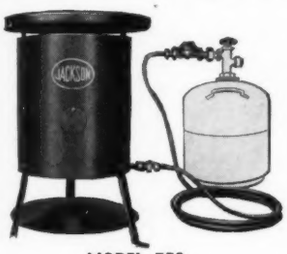
Eight Lincoln 400-amp welders powered by a Caterpillar DI3000 engine comprise this heavy-duty welding unit, built for the Sapulpa Tank Co., Sapulpa, Okla. Estimated fuel savings of $45 a day result from the use of this combination rather than eight individual units. For details circle No. 120 on card at page 18 or write to The Lincoln Electric Co., 22801 St. Clair Ave., Cleveland 17, Ohio.



This new road disk, mounted on a motor grader, operates from the grader's scarifier controls, permitting better visual control of the disking operation. The Shav-O-Disc cuts, shapes, and pulverizes any oil-base pavement over a 56-inch width, and does not interfere with the grader blade. For details circle No. 125 on card at page 18 or write to Shav-O-Disc, Inc., 149 Union Ave., Bakersfield, Calif.

NOW! *Two* Gas Salamanders by JACKSON

INSTANT HEAT...



MODEL 750

RIGHT WHERE YOU WANT IT!

Ideal for construction, wharehouses, mills and foundries, industry and emergency heating. Uses Liquified Petroleum (L/P) bottled gas to produce an even heat which is deflected along floor (with no hot spot under heater) by a special, dual-purpose shield. Equipped with Underwriter Approved low-pressure regulator and colored hose assembly with fittings. Automatic Safety Shut-Off Control stops flow of fuel when flame is extinguished. Inside baffle for hotter flame, more efficient use of fuel. Inexpensive to operate—simple to service. Model 500—50,000 BTU per hour, Model 750—75,000 BTU per hour.

Portable — Low Cost Heat
Compact — No Fumes
Efficient — Clean
Instant Heat — Easy to Service
Rugged Construction

JACKSON MANUFACTURING COMPANY
HARRISBURG, PENNSYLVANIA
Oldest and largest wheelbarrow maker in America

For more facts, use Reader-Reply Card opposite page 18 and circle No. 350

Official N. J. road map issued in booklet form

The 1955 official road map of New Jersey—the first issued by the State Highway Department in the past nine years—has been printed in booklet form for the convenience of motorists.

A key map of the entire state, showing the 1,776 miles of major highways in New Jersey, as well as county boundaries and county seats, is in the front of the booklet. Counties are printed in various colors for easy identification, and state parks, forests, airports, railroads, and the intercoastal waterway are shown. About 15,000 miles of state, county, and municipal roads are shown, including the Garden State Parkway and the New Jersey Turnpike.

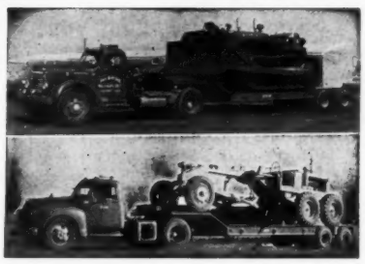
Post card requests for the new, free maps should not be addressed to the State Highway Department, but to P. O. Box 796, Newark, N. J.

So Light, to be so Strong

THE NEW DORSEY LOW BED TRAILER



Now, a 20-ton trailer weighing only 8,250 pounds cuts operating costs and gives busy heavy haulers more loads within legal limits. High tensile steel main channels and close-spaced all-welded cross members give extra strength to the Dorsey HTS series of low bed trailers also available in 15, 25, 30 and 35-ton capacities. Flat-type gooseneck steps up efficiency and versatility. Wheels in tandem "walk" on stub axles over rough terrain, pull easily on highways.



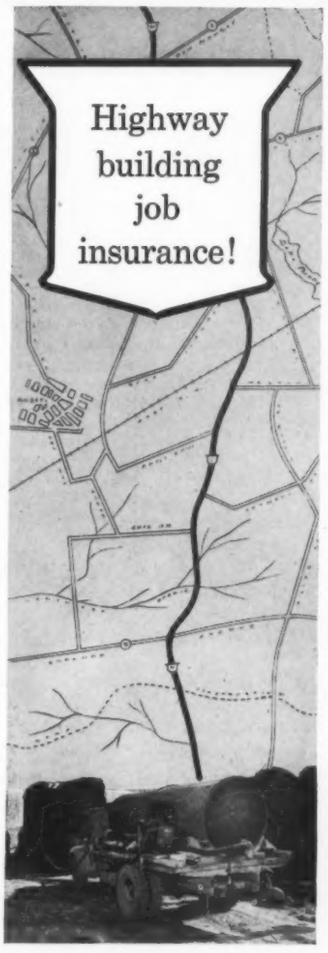


Typical loadings show versatility of flat-type gooseneck Dorsey HTS low bed trailers which are delivered ready for work with brakes, recessed lights, tool box as standard equipment. Grader ramps are optional at extra cost.

SEE YOUR DORSEY DISTRIBUTOR OR CONTACT

DORSEY TRAILERS ELBA, ALABAMA

For more facts, use Reader Reply Card opposite page 18 and circle No. 351



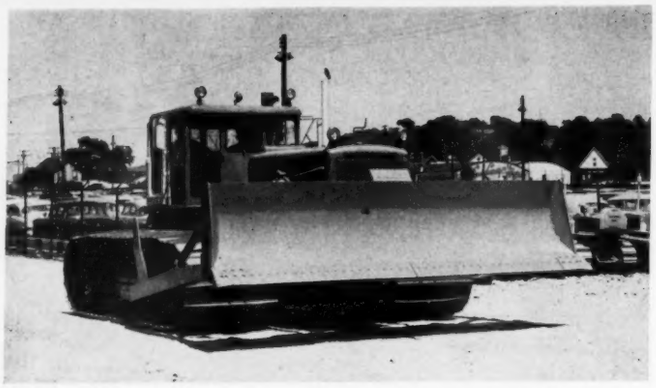
Marlow Pumps
keep 'em rolling

It costs the S&M Construction Company of Providence, R. I., *$500 per hour* to tie up this two-cubic-yard batch paver. *That's* why there's a dependable Marlow Engine-Driven, Self-Priming Centrifugal Pump mounted on this tank truck. This small pump assures a steady supply of water at 30 p.s.i. to feed the mixer tank . . . without interruptions or break-downs.

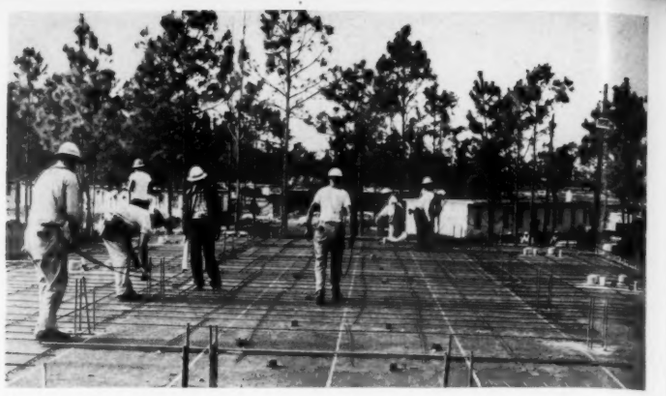
For complete information on Marlow AGC rated pumps, see your Marlow dealer today or write for Bulletin C-04.

MARLOW PUMPS
Ridgewood, New Jersey
Division of Ball & Gossett Company

For more facts, circle No. 352



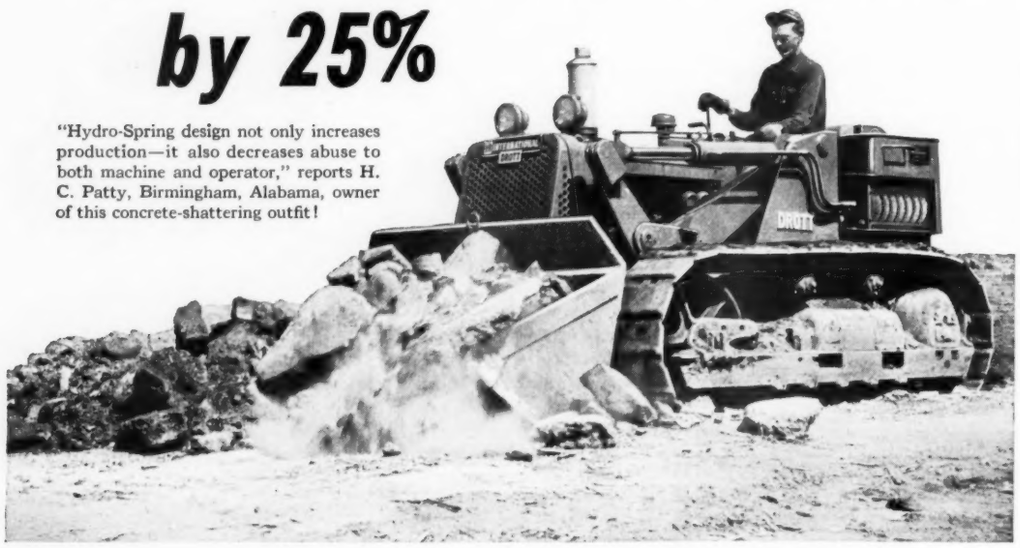
Equipped with outsize tracks and winterized to withstand minus-65-degree temperatures, this custom-built D8 is one of ten manufactured by Caterpillar for Adm. Byrd's latest expedition to the South Pole. The LGP D8 has 54-inch track shoes instead of the customary 24-inch shoes. For details circle No. 123 on card at page 18 or write to Caterpillar Tractor Co., Peoria 8, Ill.



Moisture-resistant strapping tape covers joints between Masonite sheets serving as floor forms on this Miami, Fla., apartment project. Behr-cat No. 211 pressure-sensitive tape, glass-fiber-reinforced, is applied in 1-inch-wide strips to prevent leakage of water through form joints. For details circle No. 119 on card at page 18 or write to Behr-Manning, Division of Norton Co., Troy, N. Y.

How Hydro-Spring's "Shock Cushion" Helps Skid-Shovels outlast all others by 25%

"Hydro-Spring design not only increases production—it also decreases abuse to both machine and operator," reports H. C. Patty, Birmingham, Alabama, owner of this concrete-shattering outfit!



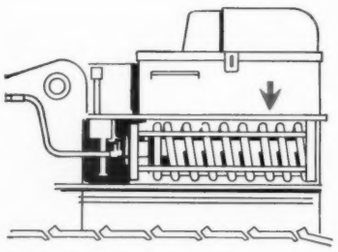
Slam this super-stout bucket into compacted material, and you generate impact stresses that make unprotected front-end loaders shudder!

But International Drott Skid-Shovels smother these shocks enroute, before they can sprain a sacroiliac, strain a track frame, or maim a final drive! Machine-mauling shock stresses "lean" against exclusive Hydro-Spring's "magic cushion"—and they're absorbed!

No Strain! No Pain!

You apply the patented pry-action break-out—and you get up to three times as much material-loosening, bucket-cramming force as the ordinary front-end loader can muster. Even then, shock-swallowing Hydro-Spring wards off strain and pain! *Owners declare that Hydro-Spring adds a whopping 25 per cent to loader and tractor life—reduces downtime and boosts production, too!*

No other front-end loader has Hydro-Spring advantages—which you get in four big-capacity, contractor-proved International Drott Skid-Shovel sizes. Why not ask your International Drott distributor for a demonstration of the money-making size best suited to your needs?



How exclusive Hydro-Spring works and saves for you!

Exclusive Hydro-Spring is a hydraulic cylinder enclosed in a heavy-duty coil spring. Shock force displaces oil from main lift cylinders into the Hydro-Spring cylinder—extending it and compressing the big spring to *absorb* and *cushion* impact loads. Hydro-Spring reduces the consequences of shock forces *by an actual 67 per cent or more*—also eliminates most hydraulic hose failures!

INTERNATIONAL HARVESTER

INTERNATIONAL® DROTT

For more facts, use Reader-Reply Card opposite page 18 and circle No. 353

Revised manual on concrete

A new edition of the Concrete Manual prepared by the Engineering Laboratories of the Bureau of Reclamation in Denver, Colo., contains up-to-date information on the use and behavior of concrete — information which has come to light since the manual was last issued in a fifth edition in 1949.

The pocket-sized soft-cover manual is priced at $2.50 per copy, and may be had by writing the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., or the Bureau of Reclamation, Denver Federal Center, Denver, Colo.

Catalog on filter data

■ A complete specifications catalog giving oil filter information for a wide variety of construction equipment is available from Purolator Products, Inc. The installation of Purolator filters and other equipment is illustrated and fully explained.

Specifications given for more than 100 manufacturers' models include the model number or year, the type of filter equipment recommended, the Purolator part number for this equipment, and information about filter refill.

An interim filter specification sheet gives the latest data on recommended installations for late model equipment.

To obtain Catalog 2054 write to Purolator Products, Inc., 970 New Brunswick Ave., Rahway, N. J., or use the Request Card at page 18. Circle No. 137.

SIGHT LEVELS INSTANTLY!
STRATEX SURVEYING



Hand Level $12.00

Positive slopes, elevations, drainage—farm, forest or construction. Built for life—simple to use—lets you plan, build, excavate with confidence; adjusts instantly from outside of instrument even in gusty weather! **Put it to work now.** It pays for itself on one job—fully guaranteed. $2 cash, bal. C.O.D., or $12 with order, we pay charges. Saddle leather case included. **FREE** price list.

IN U.S.A.

STRATEX INSTRUMENT COMPANY, INC.
3515CE SUNSET BLVD., LOS ANGELES 26, CALIF.

For more facts, circle No. 354



Demountable wheels attached to an axle mounted transversely to working position convert the Pettibone Wood spreader box into a portable unit. The elevated drawbar is detachable. Hauled behind a dump truck, the unit forms material into accurately measured windrows. For details circle No. 124 on card at page 18 or write to Pettibone Wood Mfg. Co., 6900 Tujunga Ave., North Hollywood, Calif.



One of Worthington Corp.'s new rotary compressors furnishes air for a wagon drill at the site of a new housing project in Scarsdale, N. Y. This modern Blue Brute, which delivers 315 cfm, has a hydraulically operated clutch and permits instant lubrication of moving parts. For details circle No. 121 on card at page 18 or write to the Worthington Corp., 401 Worthington Ave., Harrison, N. J.

Hydraulic highway mower

■ Literature on the recently introduced Hydro-Clipper highway mower has been released by Triumph Machinery Co., P. O. Box 110, Hackettstown, N. J. The tractor-mounted mower features a hydraulic drive that has been designed to keep repair and maintenance to a minimum.

Features pointed out include the cutter bar and specially-shaped Pitman housing that "float" as a unit over obstructions. A 90-degree breakaway and an automatic self-return feature protect the cutter-bar in heavy brush and reduce clutch failure.

Bulletins illustrating the Hydro-Clipper mower on Ford, Allis-Chalmers Model IB, and LeRoi-Centaur tractors are available on request.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 99.

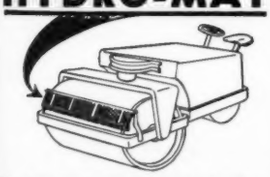
New branch for Texaco's technical service

The Texas Company's research and technical department has announced that Texaco has expanded its specialized services to industry by opening a new technical service headquarters at Building No. 1, Gateway Center, Pittsburgh, Pa. The office is under the direction of J. C. Van Gundy.

The headquarters will provide a technical service center for the iron, steel, and aluminum industries, and other manufacturers located in the area.

For Increased Efficiency in Road Roller Operation Get the *NEW*

HYDRO-MAT



All sizes for all makes of road rollers.
KOFFLER SALES CORPORATION
3757 No. Racine Ave., Chicago 13, Ill.

For more facts, circle No. 355

NO WONDER HYATTS ARE SO GOOD . . .



there's no substitute for . . .

DISTRIBUTED BY DEALERS EVERYWHERE

A GENERAL MOTORS PRODUCT

A UNITED MOTORS LINE

EACH ONE GETS OVER 50 GOIN'-OVERS!

says HY WHEELER, the sage of the socket wrench

And that's just *before* assembly, brother! The average roller gets off "easy" with only 17 inspections—the average race has to pass 41. Then at *final* inspection, every finished Hyatt gets a goin'-over that makes the third degree look like a Sunday school picnic!

That final inspection and packaging at Hyatt is as careful as for a thousand-dollar watch. Why, the girls even have their hands coated with special stuff to keep any sweat from touchin' those precious Hyatts! That's why I keep remindin' you: There's other bearings that *look* as good, but you *hold out for Hyatts in the blue and yellow box.*

HYATT ROLLER BEARINGS

STRAIGHT BARREL TAPER

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

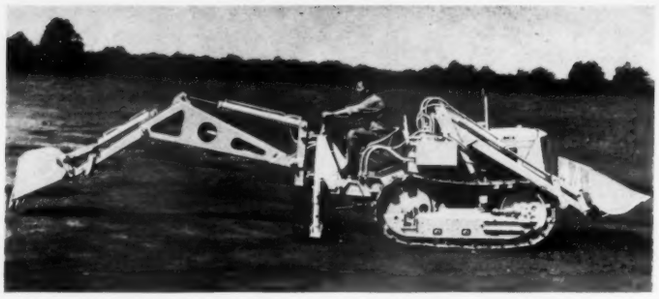
For more facts, use Reader-Reply Card opposite page 18 and circle No. 356

Booklet on mortar

■ The advantages of its mortar cement as a single cementing material for laying-up units and finished masonry are pointed out by Universal Atlas Cement Co. in a booklet, "Build Better Masonry with Atlas Mortar Cement."

The essentials of good mortar are discussed, and the full details of Atlas mortar cement and why it is said to provide a superior mortar are set forth. A section devoted to illustrations of typical jobs and four pages of tables are included.

To obtain this booklet write to the Universal Atlas Cement Co., 100 Park Ave., New York 17, N. Y., or use the Request Card at page 18. Circle No. 90.



The new Jet trencher is shown mounted on the Oliver OC-3 tractor.

Hydraulic trencher for crawler tractor

■ A hydraulic trenching attachment for the Oliver OC-3 tractor features a unique two-point hitch that permits the operator to hook up or remove the trencher in 90 seconds, and without leaving the tractor. With the trencher detached, the two-point hitch holds the counterweight for a front-end loader, or takes a number of handy attachments such as scarifier bar and grader blade.

The Oliver OC-3 tractor has 21.85 drawbar horsepower and differential-type steering that keeps power on both tracks at all times.

The new Jet trencher attachment digs to a depth of 12 feet, lifts to 11½ feet and clears 7½ feet for easy loading of high trucks. Two dipper sticks are available: the longer stick is for digging in moderately heavy soils, while the shorter one handles a difficult material like clay and digs to 10 feet. Various bucket sizes can be obtained.

The trencher is designed so that it is offset to one side of the tractor. This permits close parallel digging, improves operator visibility, and makes digging next to buildings and ditches easier. Because the boom of the Jet trencher swings a full 180 degrees, it reaches out at right angles to dump well clear of the ditch. A 180-degree swing also permits trucks to be spotted back alongside the trencher, far away from the ditch for safer, easier loading.

Hydraulic controls include relief valves that guard against overloads, and a cushioning valve on the swing assures smooth stops and starts.

For further information write to the Oliver Corp., 400 W. Madison St., Chicago 6, Ill., or use the Request Card at page 18. Circle No. 104.

Designs for concrete forms used in wall construction

■ A handbook of panel designs for building forms used in concrete wall construction has been released by Richmond Screw Anchor Co., Inc., 816 Liberty Ave., Brooklyn 8, N. Y.

Included in the booklet are modular panel designs, fabrication details, diagrams, and other necessary data. The methods shown are reportedly those proved best and most economical in extensive research by Richmond, and all are the product of contractors' experience on many jobs.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 134.

Booklet lists equipment using diesel engine

■ A new booklet just released by Cummins Engine Co., Inc., Fifth St., Columbus, Ind., is a directory of manufacturers who offer Cummins diesels as standard or optional power in their equipment.

Divided into five sections including construction and mining equipment, and on and off-highway trucks, the booklet contains the name and address of the manufacturer, plus a listing of his equipment and the corresponding Cummins diesel engine that is used for power.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 131.

THERE'S NO SUBSTITUTE for LUBER-FINER'S ENGINEERED PROTECTION



YES! IT'S WHAT'S INSIDE THAT COUNTS

The Efficiency of Luber-finer's Exclusive Patented Process HAS NEVER BEEN EQUALLED!

USE ONLY GENUINE Luber-finer DIESELPAKS



Only a Luber-finer Unit *Plus* a Genuine Luber-finer Pack can give the Exclusive Patented Filtering Process that has made Luber-finer The Standard of The Industry Since 1936!!



THERE'S A LUBER-FINER MODEL FOR EVERY TYPE OF ENGINE— EVERY TYPE OF OIL!!

LUBER-FINER PACKS AVAILABLE

1. REFINING PACK

Introduced to the public in 1935 for use with straight mineral oils, fuel oils, hydraulic oils, and inhibited industrial oils.

2. DIESELPAK

First made available in 1941, the DIESELPAK was primarily designed for use with H.D. detergent compounded oils and has also achieved outstanding results when used with fuel oils and straight mineral oils.

DON'T BE MISLED BY PRICE ALONE!

There is no substitute for DIESELPAK'S Patented Filtering Process for H.D. Compounded oils AT ANY PRICE!

The DIESELPAK cleans more oil faster —keeps it CLEAN longer—and gives more service and better engineered protection than ANY of the substitute filtering elements being offered for Luber-finer units.

IT PAYS TO GET THE BEST!

STANDARD OF THE INDUSTRY SINCE 1936

Luber-finer Units are Standard and Optional Equipment on America's Leading Diesel Trucks, Tractors, Stationary Engines.

Write for Complete Information to Dept. 60

LUBER-FINER, INC.
2514 S. Grand Ave., Los Angeles 7

For more facts, circle No. 357

Haul Larger Legal Payloads



FASTER . . .
EASIER . . .
CHEAPER . . .

With an OMAHA STANDARD CENTER DUMP TRAILER!

Lower initial cost—less maintenance—faster unloading time—increased payloads. Put an Omaha Standard Center Dump Trailer on the job, and let gravity do the work.

Throughout the United States and Canada, hundreds of contractors are using Omaha Standard Center Dump Trailers for hauling, dumping, spreading and stockpiling all types of flowing materials; — dirt, gravel, shale, rock, sand, chemicals, cement, etc. And they find that it quickly pays for itself.

The Omaha Standard Center Dump Trailer is designed and built to give you greater production at less cost — conforms with all state bridge and axle laws. Illustration shows 10-yd. trailer. Built in all yardages, for any material, single or tandem, for on or off highway. Also available with cross-flow hoppers for spreading. Tell us your problem. Write now for full information.

OMAHA STANDARD
FACTORY AND GENERAL OFFICES
2401 W. Broadway
COUNCIL BLUFFS, IOWA

For more facts, use Reader-Reply Card opposite page 18 and circle No. 358

4
MAJOR FACTS about C & E

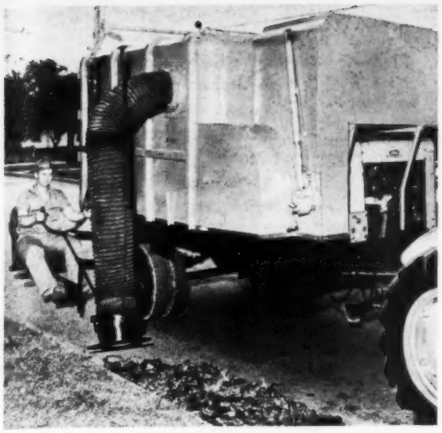
1. It carries more editorial material than any other monthly publication in the field.
2. It also carries a higher proportion of editorial to advertising content.
3. C&E carries more display advertisers than any other monthly, and,
4. More exclusive advertisers.

This leadership pays off in readership and produces inquiries and orders for advertisers. It helps explain why CONTRACTORS AND ENGINEERS carries more advertisers, and more exclusive advertisers than any other monthly in the construction market.

A 2-line inquiry will bring you the facts you want about the huge construction market.

Contractors & Engineers
Magazine of Modern Construction
470 Fourth Ave., New York, N. Y.

For more facts, circle No. 359



A new dust trap for the Good Roads motorized scavenger eliminates the annoying discharge of dust which often accompanies debris-collecting operations.

Announce new dust trap for motorized scavenger

■ A new device to eliminate discharge of dust has been developed for its motorized scavenger by Good Roads Machinery Corp., Minerva, Ohio. The dust-trap attachment is offered as optional equipment with all new units, and can be readily installed on all existing scavengers. It mounts above the unit's power plant.

According to the manufacturer, the attachment filters and washes exhaust air so thoroughly that nuisance complaints are eliminated even when very dry material is being collected. The trap can be by-passed, if desired, when wet or otherwise dust-free material is being picked up.

Redesigned to make provision for the dust trap and optional hydraulic controls for intake hose positioning, the Good Roads scavenger can be mounted on a truck chassis or heavy-duty trailer. Its 12-cubic-yard hopper is hydraulically dumped.

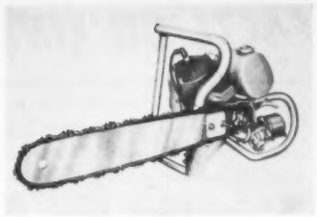
For further information write to the company, or use the Request Card at page 18. Circle No. 48.

Asphalt reconditioner

■ A bulletin describing its heater-planer for use in maintaining asphalt roads, streets, and runways is available from the Monatco Mfg. Corp., 1401 Woodland, Kansas City, Mo. Complete specifications are included.

Features of the Monatco heater-planer, such as its controlled application of intense heat and the elimination of smoke during operation, are discussed in the bulletin. The operation of the unit in heating, softening, and planing asphalt roads which need reconditioning is explained.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 94.



THIS ECONOMICAL Lancaster chain saw furnished with 16-inch bar and chain is recommended for felling trees and for clearing brush. Equipped with a 3.5-hp, 2-cycle engine, the Model 400 features a heavy-duty tool-steel guide bar. Other Lancaster chain saws are available in sizes up to 36 inches for one or 2-man operation. For further information write to Lancaster Pump & Mfg. Co., Manheim Pike, Lancaster, Pa., or use the Request Card at page 18. Circle No. 112.

CRAWLER TRACTOR **SPROCKETS - MASTER PINS**
REMOVED in MINUTES in the field



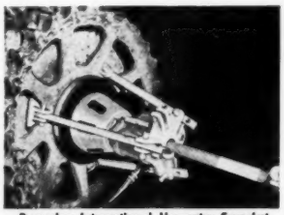
Removing Track Master Pin with OTC Hydraulic Ram and Adaptors.

with **ONE**
OTC HYDRAULIC PULLER



Hydraulic Ram and Puller makes both jobs easier.

One man can remove a Crawler Track Master Pin or a Sprocket or both in mere minutes with the OTC Hydraulic Puller and Attachments. Available in 50 ton or 100 ton capacities these versatile sets are easily and quickly put to work in the shop or field. Hand or electric pumps are available . . .



Removing International Harvester Sprocket with OTC Hydraulic Ram and Adaptors.

The OTC POWER-TWIN HYDRAULIC UNITS are also easily adapted to pull, bend, straighten, press or spread—pull or install bearings, sheaves, gears or pulleys on all types of contractor equipment. Quickly pay for themselves in man hours saved. For the complete story on the OTC Hydraulic line write for Bulletin HY-55.

OWATONNA TOOL COMPANY
381 CEDAR STREET • OWATONNA, MINNESOTA
For more facts, use Reader-Reply Card opposite page 18 and circle No. 360

MAINTENANCE of a
VIBRO-PLUS ROLLGEAR
is child's play...



The Patented Internal Vibrator That Keeps Upkeep Costs Down...

There's no involved, intricate process in keeping the Vibro-Plus Vibrator in working order! Advance design eliminates those parts which cause the most trouble and breakdowns: clutches, V-belts, high-speed flexible shafts and makes it completely interchangeable between gas, electric and air.

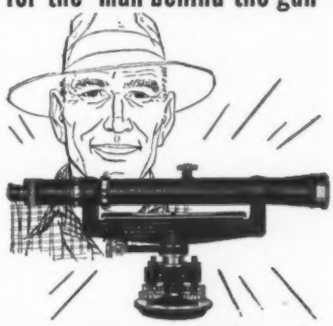
It requires no maintenance or lubrication on the job. It is factory lubricated and needs relubrication only after the job is done.

A really fool proof unit which is covered by a 6 month guarantee.

Write for FREE Illustrated Catalogue, Box B.

VIBRO-PLUS PRODUCTS, INC.
54-11 Queens Blvd., Woodside, New York
For more facts, use Reader-Reply Card opposite page 18 and circle No. 361

Here are important facts for the "man behind the gun"



This White 18" Dumpy level has
...more of the features you want, yet costs you less!

Before you buy, compare this White Dumpy level with a similar model of any other recognized make. From every standpoint — design detail . . . quality construction . . . work-speeding, life-lengthening features and cost — you'll quickly see why a White's the best buy you can make. It will make your work faster, easier, more accurate. Check this comparison chart:

FEATURES	D. White No. 7080	Instrument A	Instrument B
Magnifying power of telescope	35X	30X	27X
Distance away you can read 1/100 ft. graduation	1200 ft.	1050 ft.	900 ft.
Diameter of objective lens	1.81 in.	1.485 in.	1.69 in.
Field of view (in minutes of arc)	64'	52'	60'
Coated optics	YES	YES	YES
Covered leveling screws	YES	YES	YES
Can you easily replace worn leveling screws in the field?	YES	NO	YES
Sensitivity of level vial (in seconds of arc per 2mm of graduation)	20"	20"	25"
Price — complete with carrying case, tripod and accessories — F.O.B. factory	$305.00*	higher	higher

For complete details on the 18-in. Dumpy level and other equally fine engineering instruments, see your David White dealer, or write direct to DAVID WHITE CO., 359 W. Court Street, Milwaukee 12, Wisconsin.

DAVID WHITE COMPANY

We offer complete, expert repair service on all makes, all types of instruments.

*Price subject to change without notice.

For more facts, circle No. 362

FACTS ON FINANCE

by WILLIAM HURD HILLYER

An unprecendented demand for new projects at a time when there is a growing scarcity of funds characterizes recent weeks in construction. This combination of factors, analyzed in a special survey by Chase-Manhattan, New York's biggest bank, means that even if the $25 billion proposed federal aid comes through for schools, waterworks, parking facilities, and other public construction, state and local authorities will have to secure at least $32 million more to finance these improvements.

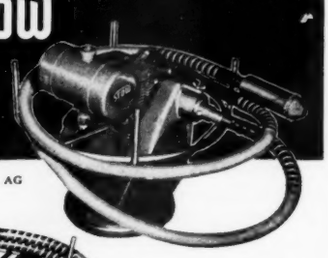
One of the more interesting conclusions of this survey—in view of the congressional battle over the "how to" aspect of road financing—notes that highways are "long-lived productive assets", and as such, should be financed on a business basis rather than through increased taxation or excessive federal aid. In essence, this would mean building a larger percentage of toll roads, which would be paid for by borrowings against anticipated income.

A plan departing from the usual mode of toll-road financing has been taken under consideration by Illinois. The state may raise money for its 193-mile toll road in successive steps—selling smaller bond issues at convenient intervals rather than in one over-all flotation. This type of financing is being made more attractive since costs have jumped about $20 million for the program since estimates were made last winter. An additional $13 million will probably be added to the bill by the time work gets under way on the project. If the policy is adopted generally, it may make it easier to finance major projects dependably.

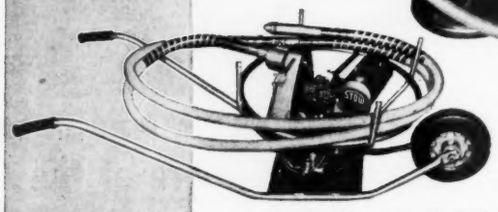
The tight money in the municipal bond mart broke slightly last month, and new bond offerings—particularly the longer maturities—were well received. Buyers appearing unexpectedly—trust funds, pension funds, a number of small individual investors—all seemed to have been waiting for bargains. And bargains there were, for until then, lower prices featured open trading. Typical losses were 3½ percentage points in four days by West Virginia Turnpike 4⅛ bonds, and a point a day for Florida Turnpike 3¼'s, which brought them to a new low for the year.

Despite the eight "doldrum" weeks in midsummer, the municipal bond market was able to absorb some $700 million in long-term bonds, plus nearly $300 million in dealers' carry-

New performance features built into STOW CONCRETE VIBRATORS



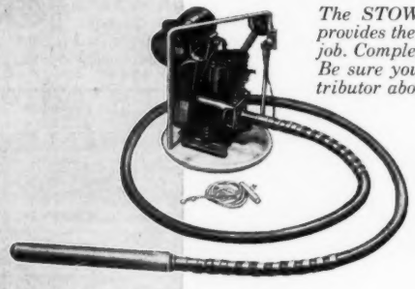
MODEL AG



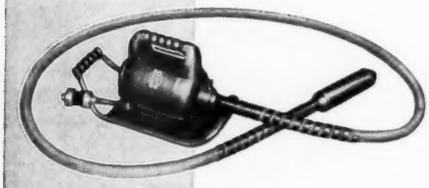
SHOWN: MODEL BGW. This is the standard STOW model BG vibrator, mounted on wheelbarrow for easy maneuverability. Model BG & BGW feature 2 HP 4 cycle, air-cooled engine; ball-bearing eccentric belt tensioner.

Contractors like STOW vibrators because the high operating speeds of this new STOW vibrator line make possible the use of heavy duty, light weight flexible shafting, and lighter, more efficient vibrator heads. And STOW design provides convenient speed control so that attachments for rubbing, grinding, cleaning may be used directly on the vibrator shafts, making it unnecessary to purchase extra shafts for this purpose.

The STOW line is complete . . . provides the right vibrator for every job. Complete accessories available. Be sure you see your STOW distributor about the STOW line!



MODEL J—The lowest priced vibrator in the STOW line. Slower speed means longer, trouble-free operation. Model J features 3600 (max.) VPM, 2 HP 4 cycle air-cooled engine, and direct drive.



MODEL BU—Features 2 HP at 9000 VPM, operates on 115 volts AC or DC with splash-proof, high speed ball-bearing motor.



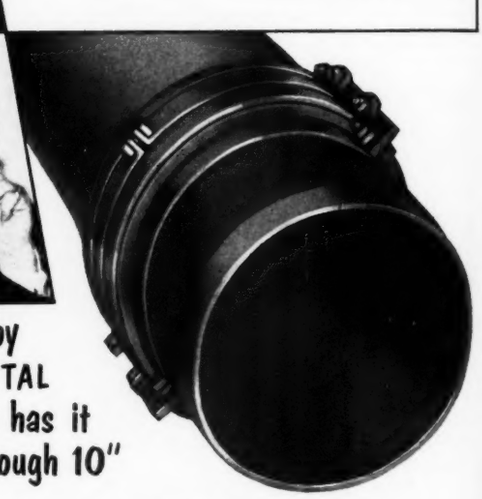
See how STOW can save money for you! Send for Free Catalog 552.

STOW MANUFACTURING CO. 40 Shear Street, Binghamton, N. Y.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 363

Yes, sir! You can have that Suction Hose by noon today!





Your nearby CONTINENTAL warehouse has it —1½" through 10"

You'll get *fast* delivery when you call any nearby Continental Warehouse listed below. They *all* carry big stocks of Suction Hose—many have both 8" and 10" ready to ship the minute you call.

You have no need to wait for long distance shipments. No need for delays that eat into profits. No need to tie up your capital in costly inventories.

So, next time you need Suction Hose (or any other hose*) call or wire the nearest Continental Warehouse. You'll like this fast, stand-by service ready to give you the hose you *want—when* and *where* you want it.

HOSE by CR CONTINENTAL

*A complete line for Contractors: Air, Water, Steam, Suction, Discharge and Pile Driver Hose. Protective Clothing, Boots and Gloves. Send for latest catalog.

Tear out this list to call for fast delivery on hose from CONTINENTAL WAREHOUSES

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BOSTON (Allston 34), Mass. 12 Franklin St.
BUFFALO 3, N. Y. 115 Clinton St.
CHICAGO 10, Ill. 10 West Hubbard St.
CINCINNATI 2, Ohio 49 Central Ave.
CLEVELAND 15, Ohio 2731 Prospect Ave.
DETROIT 27, Mich. 13801 Schoolcraft Ave.
INDIANAPOLIS 2, Ind. 309 North Capitol Ave.
MEMPHIS 3, Tenn. 268 Madison Ave.
NEW YORK 7, N. Y. 81 Murray St.
PHILADELPHIA 6, Pa. 311 North Randolph St.
ST. LOUIS 8, Mo. 4018 Olive St.
SYRACUSE 3, N. Y. 739 Montgomery St.

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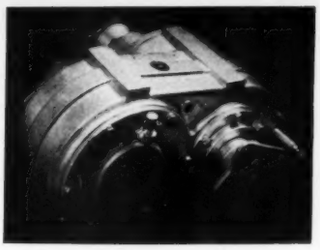
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over during July and August. As of the beginning of September, the weekly average of long-term offerings stood at $103 million. But this should not encourage an expectation of higher prices, according to the most active municipal bond firm in Chicago. At best, says this firm, there will be a "period of stability" in the market.

Some of the factors making money scarce recently are expected to persist. One of these is the increase in interest rates by the Federal Reserve System, a step which has helped slow down municipal trading. The small but fairly regular rises in the "rediscount" rate charged by Federal Reserve Banks on "member" bank borrowings indicates clearly that inflation and not recession is the biggest problem now for construction and business in general. The rate has gone up to 2¼ per cent in four successive jumps at the twelve Federal Reserve Banks, a relatively high figure. All this is aimed at discouraging further extensions of credit. Business loans at New York banks are now nearly $1.2 billion ahead of last year's rate, and they have gone to more than $314 million during weeks which saw a $402 million drop in 1954, according to estimates.

Money will become scarce during the remainder of 1955 and the first part of 1956, but the slowing tempo of business which will result is expected to be essentially corrective. Most major banks share in this opinion. The First National City Bank of New York feels a healthy "leveling off" is due, and an official of the Federal Reserve Bank of Chicago sees "total activity" in construction holding at about the present rate for some time. THE END

School is open—drive carefully!



The Failing G-54 power take-off.

Power take-off unit for use with drills

■ Almost twice the rated horsepower capacity of the earlier model has been packed into an improved power take-off unit announced by the George E. Failing Co., Enid, Okla. The new unit is designed particularly for use with the latest drilling equipment.

The new G-54 power take-off is similar in design to the Failing G-40 unit, but is said to double the horsepower capacity and better the safety factor found in the earlier model. The G-54 is recommended for use with all drills equipped with air compressors and drills using a 5×8 pump.

The unit is expected to have wide application in the construction field, as it will drive a wide variety of auxiliary equipment requiring full engine torque on a split-shaft power take-off.

For further information write to the company, or use the Request Card at page 18. Circle No. 53.

Conventions are listed on page 97.

Improved motor setup on small mortar mixer

■ Muller Machinery Co., Inc., P. O. Box 248, Metuchen, N. J., has announced an improvement on its 4-cubic-foot plaster and mortar mixer. The electric motor on this mixer is now mounted on a hinged base, the same as the gasoline drive, so that the paddle shaft may be declutched without stopping the motor.

This feature also makes it possible to start the electric motor before applying the load, thus permitting the motor to achieve its proper rpm without overloading.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 86.

848 series
High-capacity line (80 to 200 tons per hour) for Highest Type Mixes, Cold Aggregate Control, Stabilization, and Road-Mix (Travel Plant).

845 series
Capacities of 50 to 70 tons per hour. An engineering achievement in compactness and portability.

840 series
Delivers 20 to 40 tons per hour; all types of mixes possible, including highest types.

804 mixall
For all the hot patch material you want, 5 tons per hour; cold mix, 10 tons per hour.

BG **BITUMINOUS PLANTS**

see your B-G distributor or write

Barber-Greene
AURORA, ILLINOIS, U. S. A.

For more facts, circle No. 365

BIGGEST



All of the world's "biggest" tractors depend on MECHANICS Roller Bearing UNIVERSAL JOINTS to compensate for heavy-duty shocks and strains — severe enough to twist tractor frames. MECHANICS key-drive strength, flexibility and balance are unanimously specified by the largest tractor manufacturers to keep huge capacity machines operating long hours, day-after-day. They can't afford to permit large tractors and equipment to be kept idle by needless down-time. Let MECHANICS engineers help build reliability into your (200 to 50,000 foot pounds torque capacity) machines.

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UNIVERSAL JOINTS
For Cars • Trucks • Tractors • Farm Implements • Road Machinery • Aircraft • Tanks • Busses and Industrial Equipment

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Field office bookshelf

One of a contractor's problems in setting up a field office is selecting books for an adequate engineering library. M. D. Morris of Soiltest, Inc., has compiled this list of basic reference works used by construction firms on several occasions, both at home and abroad. Naturally, no such listing can be definitive, nor does every contractor want or need all the books mentioned.

We have added to Dan Morris' basic list a new workbook of excavation, "Moving the Earth", a 1,280-page reference volume that covers every aspect of excavating and earthmoving. (See page 68 of this issue.) In addition to the titles of the books, the list includes publisher, author, price, and year of publication.

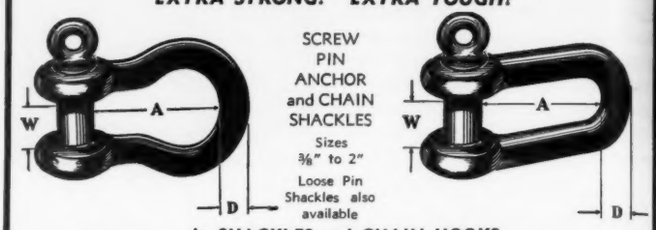
GENERAL ENGINEERING HANDBOOK C. E. O'Rourke, 1940	McGraw-Hill 330 W. 42nd St., N. Y. 36	$ 9.00
CIVIL ENGINEERING HANDBOOK Urquhart, 1950	McGraw-Hill	$11.00
MATERIALS HANDBOOK G. S. Brady, 1951	McGraw-Hill	$ 9.00
PHYSICS Houseman & Slack, 1948	D. Van Nostrand 250 4th Ave., N. Y. 3	$ 7.00
CONSTRUCTION COST CONTROL H. P. Maxton, 1952	ASCE 33 W. 39th St., N. Y. 18	$ 5.00
MANUAL OF ENGINEERING DRAWING T. E. French, 1953	McGraw-Hill	$ 8.00
METALS HANDBOOK American Society for Metals, 1951	A. S. M. 7301 Euclid Ave., Cleveland, O.	$15.00
STEEL CONSTRUCTION (Manual) 1952	AISC 101 Park Ave., N. Y. 17	$ 3.00
MECHANICAL ENGINEERS HANDBOOK Marks, 1951	McGraw-Hill	$15.00
ST'D HANDBOOK FOR ELECTRICAL ENGRS. Knowlton, 1949	McGraw-Hill	$17.00
MINING ENGINEER'S HANDBOOK Peele (2 vols.), 1941	John Wiley & Sons 440 4th Ave., N. Y. C.	$17.00
RAILWAY ENGINEERING & MAINTENANCE CYCLOPEDIA, 1948	Simmons Boardman 30 Church St., N. Y. C.	$ 3.95
ENGR'S. DICTIONARY (Spanish-English & vv.) (Or equivalent) L. A. Robb, 1949	J. Wiley & Sons	$12.50
SOCIETY OF AUTOMOTIVE ENGRS. HANDBOOK 1953	S. A. E. 33 W. 39th St., N. Y. 18	$10.00
HANDBOOK OF APPLIED HYDRAULICS C. V. Davis, 1952	McGraw-Hill	$15.00
BUILDING ESTIMATOR'S REFERENCE BOOK F. R. Walker, 1950	F. R. Walker Chicago, Ill.	$12.00
PIPING HANDBOOK S. Crocker, 1945	McGraw-Hill	$10.00
HANDBOOK OF CONCRETE CONSTRUCTION 1951	Universal Atlas Cement Co. 100 Park Ave., N. Y. 17	N. C.
ASPHALT HANDBOOK 1951	The Asphalt Institute College Park, Md.	$ 1.50
BLASTER'S HANDBOOK 1951	E. I. Dupont de Nemours Wilmington, Del.	$ 1.00
DATA BOOK FOR CIVIL ENGINEERS Vol. I Design 1951 Vol. II Specifications & Costs 1951 Vol. III Field Practice 1947, E. Seelye	J. Wiley & Sons	 $10.00 $13.00 $ 5.00
FOUNDATION ENGINEERING Peck, Hanson, Thornburn 1953	J. Wiley & Sons	$ 8.00
CHEMICAL ENGINEER'S HANDBOOK J. Perry, 1950	McGraw-Hill	$17.00
NEW COMBINED TABLES Smoley, 1941	C. K. Smoley & Son Chitsqua, N. Y.	$10.00
MOVING THE EARTH Nichols, 1955	North Castle Books Greenwich, Conn.	$15.00

Optional additional volumes

PLANT ENGINEERING HANDBOOK W. Staniar, 1950	McGraw-Hill	$15.00
PRODUCTION HANDBOOK Alford, Bangs, 1944	Ronald Press 15 E. 26th St., N. Y. C.	$10.00
HANDBOOK OF REFRIGERATING ENGINEERS Woolrich-Bartlet, 1948	D. Van Nostrand	$ 9.00
HEATING, VENTILATING, AIR CONDITIONING GUIDE, 1953	Am. Soc. Heat. & Vent. Engr. 62 Worth St., N. Y. 13	$ 7.50
ILLUMINATING ENGINEERING SOCIETY LIGHTING HANDBOOK, 1952	I. E. S. 1860 Broadway, N. Y. 23	$ 8.00
COMMUNICATION ELECTRONICS Pender & McIlwain, 1950	J. Wiley & Sons	$ 8.50
ELECTRICAL TRANSMISSION & DISTRIBUTION REFERENCE BOOK, 1951	Westinghouse Electric Corp. 40 Wall St., N. Y.	$ 7.00
COMBUSTION ENGINEERING 1947	Combustion Engineering Co. 200 Madison Ave., N. Y. 16	$ 7.50
AMERICAN GAS HANDBOOK 1952	American Gas Journal 205 E. 42nd St., N. Y. 17	$ 3.00
DIESEL ENGINEERING HANDBOOK 1953	Diesel Publications, Inc. 192 Lexington Ave., N. Y. 16	$ 7.50
COMPRESSED AIR HANDBOOK 1947	Comp. Air & Gas Inst. 122 E. 42nd St., N. Y. 17	$ 3.00
THE (BUFFALO) TANK HANDBOOK 1951	Buffalo Tank Corp. Dunellen, N. J.	N. C.
AMERICAN PIPE MANUAL 1951	American Cast Iron Pipe Co. 117 Liberty St., N. Y.	N. C.
CONVERSION FACTORS & TABLES 1944	Industrial Research Service Dover, N. H.	$ 2.00
NATIONAL FIRE & ELECTRICAL CODES 1950	Nat'l Fire Protection Assoc. 60 Batterymarch, Boston 10, Mass.	$ 3.00
MAKING, SHAPING & TREATING OF STEEL 1951	U. S. Steel Co. Pittsburgh, Pa.	$ 7.50

BIG ORANGE *Hi-Strength* PRODUCTS

EXTRA STRONG! EXTRA TOUGH!





In SHACKLES and CHAIN HOOKS it is STRENGTH that Counts BIG ORANGE HAS IT!

Shackle Hooks Can Be Used on "HIGH TEST" Chain

Grab Hooks Available for Chain Sizes 1/4", 3/8", 5/16", 7/16", 1/2", 5/8"
SLIP HOOKS for Chain Sizes 1/4", 5/16", 3/8", 1/2"

Ask your Distributor or Write

MIDLAND INDUSTRIES, INC.

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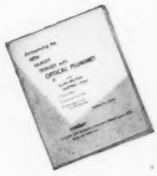


New Optical Plummet Built into Gurley Transit Saves Set-up Time, Improves Accuracy on Windy Days

Instrument Available in Two Models with Shifting Heads

Years ago, Gurley introduced lightweight instruments to combat wind vibrations Now Gurley further beats the wind problem with an optical plummet *built into* the instrument.

The new Gurley Optical Plummet Transit eliminates swing and sway of the cord and plumb—always time-consuming and exasperating on a windy location, and inaccurate as well. Positive accuracy of set-up is assured with the Gurley Optical Plummet.

Two types of shifting head are available: one, which uses the Gurley wide-frame tripod, is adjusted over the point—using a method similar to the theodolite...the other, featuring a slow-motion, two-direction cross-feed head, permits movement in two directions at right angles to each other without disturbing the level of the plate.



Gurley's new Optical Plummet Transit offers one of the advantages of the optical-reading theodolite *plus* the desirable features of simplicity and universal acceptance of the American transit. For further details, write for Bulletin OP-57.

GURLEY

W. & L. E. Gurley, Fulton & Station Sts., Troy, New York

Gurley—Since 1845

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Automatic welding head has simplified controls

■ A new automatic welding head designed for use in applications employing the Aircomatic inert-gas consumable-electrode method has been announced by the Air Reduction Sales Co. The new head has a continuous current rating of 600 amp, and incorporates simple control features.

According to the manufacturer, this new head is economically priced because of the single motor drive made possible by advances in the welding process and the development of constant potential power supply units. The compact design and simplified controls are said to offer definite advantages over previous models.

For further information write to Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 117.

Gradall attachments

■ The line of attachments now available for its multipurpose Gradall is described in a booklet, "How to Beat Competitive Bidding with Gradall Attachments," from the Warner & Swasey Co.

Attachments illustrated and described include various sizes and shapes of buckets, single-tooth ripper, scraper blade, material-handling buckets, grapple, concrete bucket, boom extensions, offset boom extensions, giant tongs, and a compact roller.

To obtain this literature write to the Warner & Swasey Co., Gradall Division, 5701 Carnegie Ave., Cleveland 3, Ohio, or use the Request Card at page 18. Circle No. 84.

Dravo Corp. superintendent

R. A. Thompson, superintendent of the harbor project being constructed by Dravo Corp., Pittsburgh, Pa., at Schroeder, Minn., for the Erie Mining Co. taconite development, was incorrectly identified as being George F. W. Meissner, chief engineer, in the photograph appearing on page 91 of the August issue.

Link-Belt buys Syntron

A plan whereby the Syntron Co., Homer City, Pa., will buy Link-Belt Co., Chicago, Ill., has been approved by stockholders of both companies. Syntron will operate as a subsidiary of the Link-Belt organization in the manufacture of electro-magnetic and electronic equipment.

A new Bil-Jax shore post.



New shoring equipment

■ The addition of a jack-equipped shore post and a shoring-jack head to the line of tubular steel scaffolding manufactured by Bil-Jax, Inc., Archbold, Ohio, has been announced.

The shore post is offered in three sizes adjusting from 6 to 11 feet, 8 to 13 feet, and 10 to 15 feet. Rough adjustments can be made every 6 inches.

The shoring head, used atop tubular steel scaffolding, makes it easy to utilize standard steel scaffolding for shoring purposes.

For further information write to the company, or use the Request Card at page 18. Circle No. 19.

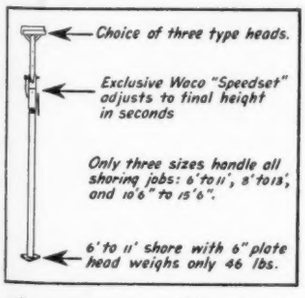
Fast Pouring Schedule Met With New All Steel Shores



Lutheran Brotherhood Building, Minneapolis
Kraus-Anderson — General Contractors

Just nine days between pours is all the time allowed on this six story, 96,000 square foot office building. Over 1800 Waco All Steel Shores were used on the job by General Contractors Kraus-Anderson in order to get the necessary speed without increasing the estimated labor cost.

A crew of 10 carpenters and five laborers set up the 1200 shores for each floor in just four days. Slab and column forms and steel work ready for pouring were finished in another four days. A total of 8,000 yards of concrete were required for the structural portion of the building.



One man can set a Waco shore in ONE MINUTE thanks to the exclusive time saving features shown above. The new WACO design ends splicing, scabbing, and wedging and gives you the maximum of safety and accuracy in the shortest possible time.

For estimates, rentals, and service on all your shoring jobs, contact your nearest Waco scaffolding and shoring expert. He's in the yellow pages of your phone book. Or write to:

WACO Manufacturing Co.
3565 Wooddale Ave.
Minneapolis 16, Minn.

Licensees
Waco May Co. — Los Angeles
Armson Iron Works — Windsor, Canada

For more facts, circle No. 369

GOODALL Waterproof CLOTHING...FOOTWEAR

For Reliable, Economical Head-to-Toe Protection





COATS • JACKETS • OVERALLS

Durable, full-cut garments, in rubber, oiled and latex constructions, for every kind of wet-weather work. Made of selected materials, with exacting craftsmanship, they are guaranteed waterproof, assuring complete protection from the elements. Reinforced where extra strength is needed, without impairing comfort and full freedom of movement. Available in a variety of styles, in all sizes. No. 338 Coat is an old-time favorite—double back; corduroy-lined collar; 49" long.

SUITS— Style 80 Jacket with Style 81 Overall makes the ideal shaft suit. Other jacket-and-overall suit combinations to meet every preference or job requirement.

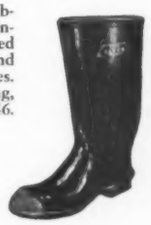
SAFETY HATS

"Hardboiled" Safety Hats in fibreglass or aluminum. Light weight and comfortable, yet providing greatest possible head protection. Exceed highest established requirements for strength, heat and moisture resistance, and dielectric tests.

"TOE-SAVER"® BOOTS

Smooth, tough, flexible black rubber, heavy duck lined. Cushion insole. White cap over reinforced steel safety toe tested to withstand 2,000 lbs. pressure. Tiretread soles. Hip, Style MB-346. Storm King, Style MB-780. Short, Style MB-946. Now with *permanently marked size numbers.*

The "Toe-Saver" feature is also available on a variety of work shoes, and on our "Contractors" Mucker Boot.



Contact Our Nearest Branch for Details and Prices

GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.

Branches: Philadelphia • New York • Boston • Pittsburgh • Indianapolis • Chicago • Detroit • St. Paul • Los Angeles • San Francisco • Seattle • Spokane • Portland • Salt Lake City • Denver • Houston • Goodall Rubber Company of Canada, Ltd., Toronto • Distributors in Other Principal Cities

Est. 1870

For more facts, use Reader-Reply Card opposite page 18 and circle No. 370

DISTRIBUTOR DOINGS

Customers like the policy of

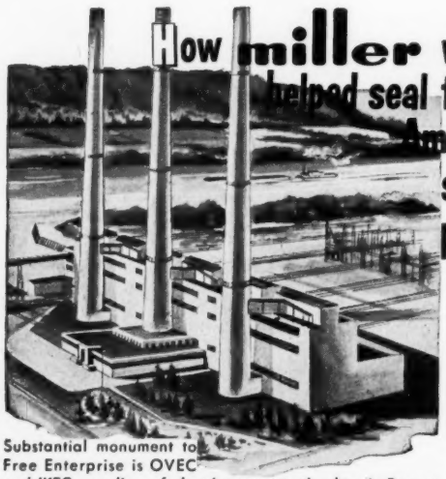
Service in the field



Mobile servicemen put a new head in an Allis-Chalmers tractor engine at a highway project being built by Schmidt Construction Co.

Reaching out beyond the confines of its headquarters, a Denver dealer has transferred a large part of its operation to the field where equipment in need of service can be spotted and repaired, thus saving the contractor the expense of taking the machinery to a repair shop and having it down for long periods of time.

When the officers of Power Equipment Co., 3340 Brighton Blvd., Denver, Colo., originated the idea of friendly service calls, they were simply trying to fill a gap which they knew existed in the contracting business. They had seen dealers place emphasis on the sale of a new machine and forget about service after delivery. And they knew that with one unit dependent in large or small part on the efficient operation of



How miller welders helped seal the arteries of America's largest single purpose power plant...



Miller Selenium Rectifier d-c Arc Welder, in four wide-range models. For complete, concise, worthwhile information on these and other Miller Arc and Spot Welders, contact us today ... at no obligation, of course.

Substantial monument to Free Enterprise is OVEC and IKEC, suppliers of electric power to the Atomic Energy Commission's new uranium diffusion center in Pike County, Ohio.

Ohio Valley Electric Corporation and its subsidiary, Indiana-Kentucky Electric Corporation, agreed to supply electric power to this great new atomic production center . . . *15 billion kilowatt-hours annually.*

Two huge generating stations are being built: The Kyger Creek Plant at Cheshire, Ohio will have five generating units of 200,000 KW each; Madison, Indiana's Clifty Creek plant will produce 1,200,000 KW with its six big generators. Each of the eleven turbo-generating units will operate off a single boiler, with super-heated steam reaching 1,050 degrees Fahrenheit under 2,000 lbs. pressure per square inch! The high temperatures and reheat, which the sponsor companies have pioneered in their own right, will make these two plants among the most economical, most efficient generating stations in the country.

These same elements, however, make the fabrication of faultless high-pressure steam lines vital . . . and extremely difficult. To accomplish this extremely important task, pipe welding specialists equipped with the maximum of engineering skill utilized the Miller Selenium Rectifier d-c Arc Welder.

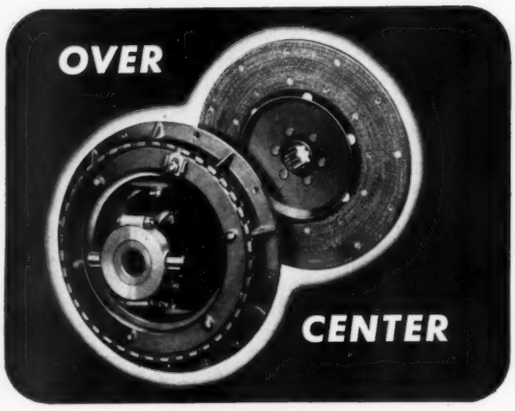
". . . . if it's Miller, you *know* it's the *finest!*"

miller ELECTRIC MANUFACTURING COMPANY, INC.
APPLETON, WISCONSIN

Distributed in Canada by Canadian Liquid Air Co., Ltd., Montreal, P.Q.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 371

ROCKFORD





LARGE DRIVING AREA

EASY OPERATION
HIGH TORQUE
POSITIVE ENGAGEMENT
LARGE DRIVING AREA
SMOOTH RUNNING
INFREQUENT ADJUSTMENT
MINIMUM INERTIA

* The pressure plates in ROCKFORD Over-Center CLUTCHES have large area, accurately flat-ground surfaces for maximum contact with the facing material. Special alloy iron is used to withstand shock and heat strains. Provision is made for multiple driving, from the back plate. Have hardened steel bearing inserts, where the roller cams operate.

Send for This Handy Bulletin

Shows typical installations of ROCKFORD CLUTCHES and POWER TAKE-OFFS. Contains diagrams of unique applications. Furnishes capacity tables, dimensions and complete specifications.

ROCKFORD CLUTCH DIVISION BORG-WARNER
▲ 314 Catherine Street, Rockford, Illinois, U.S.A. ▲

CLUTCHES

For more facts, use Reader-Reply Card opposite page 18 and circle No. 372



The three top men at Power Equipment are, left to right, William J. Faulkner, vice president, Jack Munroe, president, and O. G. Sponsler, secretary-treasurer.

other pieces of equipment, it has become vital to keep machinery on the production line as much as possible.

The company's field service is provided by 14 mechanics with seven service trucks. They work out of the Denver headquarters and the Grand Junction branch office, covering the entire state of Colorado. Not all their trips are paid calls. A considerable portion of their work consists of making free calls on contractors who have just bought equipment, just to see

(*Continued on next page*)



A bid-analysis board, showing bids on current jobs, keeps customers posted as to work throughout the state and serves as a reminder to salesmen.

for the BEST SERVICE



under the WORST CONDITIONS
"Chrome Clad" STEEL TAPES
are preferred by engineers

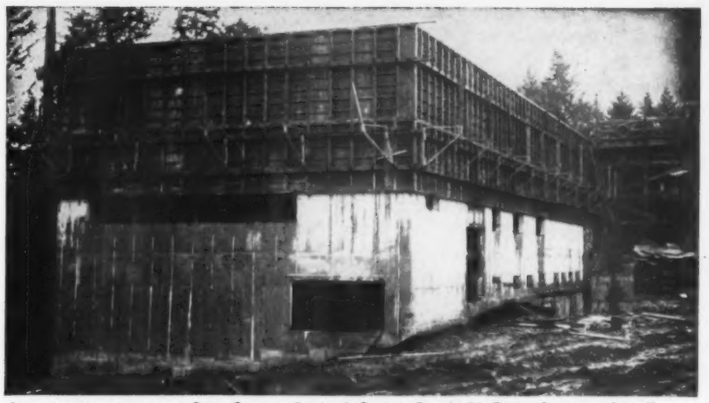
When you go out on the job, you want the most durable steel measuring tapes you can get — Lufkin "Chrome Clad." The jet black markings won't wear off, for they are bonded to the line and protected by multiple electroplatings that further build up the fine tape steel from which the line is made. The resulting line is heavier, stronger, and most rust and corrosion resistant. It is easier to read, easiest to clean, and won't surface crack, chip, or peel. Only Lufkin tapes are available with Chrome Clad.



THE LUFKIN RULE CO.
Saginaw, Michigan

The Lufkin Rule Co., Saginaw, Michigan
Please send me your illustrated catalog of measuring tapes and rules.
Name_____
Address_____
City_____ State_____
303

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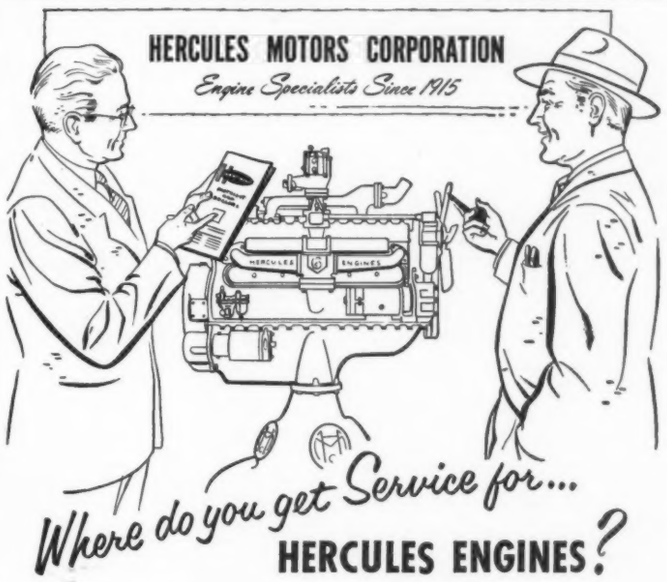
New Dormitory Lewis and Clark Campus, Portland, Oregon, Donald M. Drake Company, Gen. Con.

Pouring Second Lift of High Wall with Symons Forms

24′ wall poured in two lifts with Symons Forms. Scaffolding attached to forms makes easier setting and stripping of top forms. Note absence of bracing and minimum waling.

Send plans for your next job and get complete layout and cost sheet—no obligation. Catalog F-10 sent FREE upon request. Symons Clamp & Mfg. Co., 4251-D5, Diversey Avenue, Chicago 39, Illinois.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 374



Where do you get Service for...
HERCULES ENGINES?

Here's a List of Over 550 HERCULES Service Outlets...

● For the past few years, we here at Hercules have been enlarging our sales and service organization. New factory branches have been added, new distributors signed and two branches have moved to larger and more modern quarters.

We have just printed a list of Hercules Distributors and Dealers. There are over 550 Hercules Service Outlets listed. 241 of these outlets are located throughout the United States and the remainder are export outlets which make up our world-wide service organization.

If you operate your Hercules Engines in different regions of the country, you will want a copy of this booklet with each piece of Hercules powered equipment. We will be happy to send you a copy of "The Hercules Distributor and Dealer List" if you will write us on your letterhead.

HERCULES ENGINES
HERCULES MOTORS CORPORATION
40 Years of Engines for Industry
131 Eleventh Street, S. E. • Canton, Ohio

For more facts, use Reader-Reply Card opposite page 18 and circle No. 375

that the machinery is working in top-notch condition.

The follow-up call has become such a hallmark of the company that it has crystalized into a potent selling point. According to Power Equipment's officials, the service feature is the one and only key to sales success. They feel that contractors buy a piece of equipment because it will do a job better and cheaper than another machine. And while a superintendent will buy equipment from a firm because of long-standing friendship with a salesman, he will not repeat the purchase if something is lacking in the service policy of the distributor.

The quality of service delivered by PE has probably had some bearing on the company's sales growth. Power Equipment was organized in 1921 as an agency for White trucks and not until 1939 was a line of road-building equipment added. The White truck line was discontinued in 1948 when the White Motor Co. built its own Denver headquarters. As late as 1949, Power Equipment had only 18 employees. Today, the dealer, which principally handles Allis-Chalmers equipment, has 50 employees. Since 1953—a period when competition was at its highest in the equipment-sales field—the firm has increased its sales volume more than 200 per cent. Right now, shop space in the Denver headquarters is at a premium, and the situation is hardly likely to improve because more and more owners of Allis-Chalmers tractor equipment are finding that it pays for them to have winter overhauls made at the PE headquarters shop.

Equipment lines

Though the main equipment which PE handles is that in the Allis-Chalmers line, together with auxiliary equipment for Allis-Chalmers tractors, motor graders, and front-end loaders, the Denver distributor has other lines and special services to go with them. It has the Northwest line and maintains so good a stock for the equipment that other distributors from a four-state area frequently draw needed Northwest parts from Power Equipment.

In addition to the complete Worthington line of air compressors, drills, impact wrenches, small tools, and other products, PE has a unique rental business for air compressors and allied equipment. This is conducted from a separate service shop and rental headquarters. If a contractor is in need of air compressors and similar machines, he can come in, pick out what he needs, and take the machines out to his job for as long as he likes. If he makes the proper arrangements, he can apply 90 per cent of the rental price toward the purchase of the equipment. This service feature has been of enormous help to many contractors.

An excellent stock of small equipment, which includes Master generating sets, vibrators, screeds, and

BLACKHAWK TRENCH HOG

VERSATILE
ACCURATE
FAST
LOW COST





Ideal trencher for scores of jobs:

FOUNDATIONS
SERVICE LINES
DRAINAGE
IRRIGATION

Here's the handiest machine you ever owned —a fast, low priced, mobile tractor-mounted trencher for utility lines, foundations, sewer systems, septic tanks, etc. You'll find this ladder-type trencher working all the time. Cuts 6″ to 20″ wide trench down to a depth of 7′. Average digging speed 350′ to 400′ per hour — digs up to 800′ per hour. Cuts through all soils the year 'round. Special chisel type cutters for rocky or frozen ground. Independent control of each drive wheel assures exact and easy regulation for either straight or curved trenches. Mounts on Ford or Ferguson tractor — easily driven from job to job — one man operated. Bulldozer blade available for backfilling. Write for all the facts today.

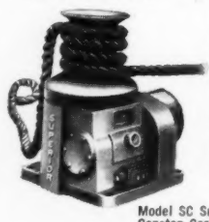
ARPS CORPORATION
DEPT CE NEW HOLSTEIN, WIS.
PRODUCTS FOR BETTER FARMS, BETTER INDUSTRIES SINCE 1920

For more facts, circle No. 376

SUPERIOR

CARPULLERS and BARGE MOVING WINCHES

CAPSTAN TYPE • DRUM TYPE • SPECIAL TYPES

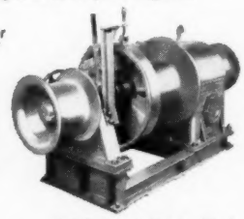


Meeting any requirements of speed, space and capacity in Carpullers and Barge Moving Winches has been a specialty of ours for many years. When planning to improve the handling of barges and railroad cars, remember our long experience in the design and manufacture of this equipment is at your disposal.

Model SC Superior Capstan Carpuller



Model EP Drum Type Carpuller



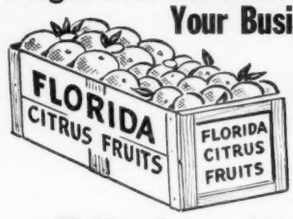
30 H.P. Electric Mooring Winch

Write for Bulletins and Catalogs

SUPERIOR-LIDGERWOOD-MUNDY CORPORATION
Main Office and Works: SUPERIOR, WISCONSIN, U.S.A.
New York Office, 7 Day Street, New York 7, N. Y.

For more facts, circle No. 377

Delight Your Customers Your Business Associates at CHRISTMAS



Give *Luscious Florida Oranges, Tangerines, Grapefruit*

. . . a Thrill for Everyone in the Family

Discover the value of giving fruit at Christmas. There's a warm place waiting for you in the hearts of your customers and their families. This year we have prepared a special EXECUTIVE GIFT arrangement of the most luscious tree-ripened Florida fruits. Fresh, golden, natural-color citrus fruit . . . sent direct from our own groves to your customer's door.

JUST SEND US YOUR LIST

There's nothing more to do. We'll take care of everything. Select packages of one variety or assorted as you prefer.

Full Box (90 lbs.) . .	$10.00
Half Box (45 lbs.) .	5.75
Full Bushel (55 lbs.)	6.75
Half Bushel (30 lbs.)	4.50

Prices include cost of shipping by railway express. Add 10 per cent for shipments west of the Mississippi River.

Discounts for Quantity Purchases — Satisfaction guaranteed on refund basis. Order with confidence. Now is the time to get started on your gift plans. **ILLUSTRATED FOLDER ON REQUEST.**

BRAUN FRUIT PACKERS Dept. C, Deland, Florida
Licensed & Bonded by Florida Citrus Commission

For more facts, circle No. 378

Save Time on Tough Schedules—

FOSTER RENTAL PILING

A phone call to Foster will provide exact sections of steel-sheet Piling you need. You can always depend on L. B. Foster Company for the piling you specify — in the exact lengths required — and *on time deliveries.*

You'll save time, speed-up pile driving operations and better your job schedules when you Rent Your Piling from L. B. Foster Company.



Foster Rental Piling forms cofferdams used in construction of the piers for the MULLICA RIVER BRIDGE Garden State Parkway

FOSTER RENTAL PILING

Contractors everywhere save on all their piling needs with prompt, exacting service from L. B. Foster Co. Foster's Rental Plan provides a low, fixed expense — gives you an extra advantage in competitive bidding.

STEEL-SHEET PILING • H-BEARING PILE
H-S LIGHT WEIGHT PILING • PIPE PILES

FASTER from FOSTER

WRITE FOR CATALOGS C-10

RAILS • TRACK EQUIPMENT • PIPE • FABRICATION
L B FOSTER CO.
PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4
ATLANTA 8 • HOUSTON 2 • LOS ANGELES 5

For more facts, circle No. 379

other Master products, and the Diamond line of rock-crushing and screening equipment, is maintained by PE so that contractors can concentrate their purchases at one equipment house.

Staffing Power Equipment Co. are some veterans of Rocky Mountain construction. President Jack Munroe's principal associates include William J. Faulkner, vice president and general manager, who formerly was sales manager of the Industrial Tractor Division of Allis-Chalmers, and O. G. Sponsler, secretary-treasurer and sales manager.

Tim Schaeffer is the man who delivers new equipment and makes friends for the company on the east slope of the Rockies. Shovel and crane delivery men include Andy Redman and Perry Sutton. Sutton is one of the few men in this section of the country who has been okayed for delivering and installing all Northwest equipment.

At the Denver headquarters, Mel Brehmer is service manager and Ronnie Ball is parts manager. Jim Simmons, as air-compressor and air-tool specialist, takes care of the upkeep of the entire Worthington rental fleet. Key people at the Grand Junction office are Warren Severe and T. C. Chapin.

Mobile service constant

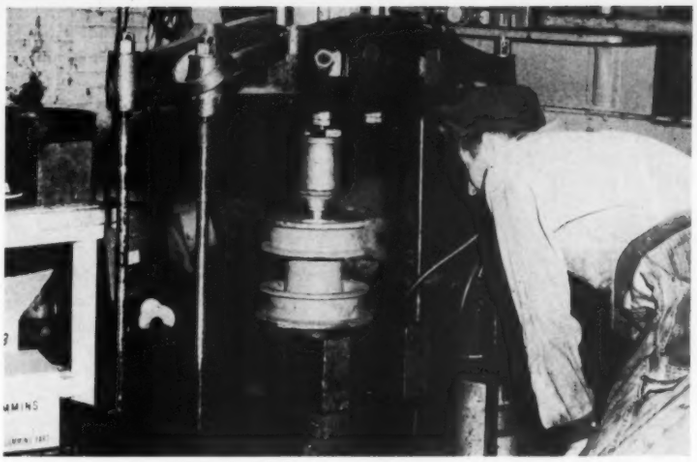
All the sales, service, and rental activities of the firm are permeated by the mobile service offered by the company. This service starts even before a piece of equipment is sold. Since many of Colorado's construction sites are dusty and have fine powder-dry soils, care is taken to send machinery out of the shop with a heavy-duty oil filter and the finest air-cleaner equipment.

New equipment is never simply delivered to a customer. A factory-trained mechanic, skilled not only in the upkeep of the machine but in training the men who eventually will be operating it, accompanies the equipment to a job. This mechanic stays on the job with the machine for several days, if necessary, to thoroughly break in new operators. Then, during the next 30-day period, he makes a point to pay several free calls at the job to see how the new machinery is working out.

A traveling service representative calls on a customer from time to time throughout the life of a machine to make a check on the equipment. In many cases, these inspections have revealed incipient trouble spots in a rig. Contractors have been so much impressed by this type of call that they have returned again to do business with PE.

What the firm's repair policy means to a contractor is a saving in downtime, and consequently a saving in money and labor. Just how the policy serves the customer can be illustrated by a recent week-end job by a service crew. Finishing an engine overhaul on an Allis-Chalmers HD-20 tractor for Schmidt Construction Co., a roadbuilding contractor, Power Equipment sent the machine

(Concluded on next page)



In the small but fully equipped maintenance shop, a mechanic uses a Rodgers hydraulic press on a set of Allis-Chalmers track rollers.

Dempster-Diggster bucket GETS A FULL LOAD WITH EVERY STROKE!



The hydraulic crowd and hoist operation of the new Dempster-Diggster GRD-101 gives you big shovel advantages in front end loading and excavation work. As shown in the at-work photos at right, here's what happens: Dempster-Diggster moves into material with shovel lowered against front of frame. No wheel traction is used to get excavation power. The hydraulic crowd and hoist moves bucket out and up following contour of material—getting a full bucket with every stroke . . . reducing loading time and idle truck time, thus getting the job done faster!



When you put your Dempster-Diggster into operation, one of the first things you will find is that your entire operation must be geared to a faster pace. This means greater efficiency of equipment and manpower—more profit to you!

Write us asking for Folder No. 3116 giving you complete information on the features of the Dempster-Diggster, including TRUCK-SPEED MOBILITY TO AND FROM JOBS . . . AUTOMATIC BUCKET TRIP . . . MAXIMUM DUMPING AND DIGGING HEIGHT . . . MINIMUM TURNING RADIUS . . . THE SHOVEL WITH TORQUE CONVERTER . . . HYDRAULIC STEERING, etc. Manufactured by Dempster Brothers, Inc.

In photo below camera catches Dempster-Diggster ready to back off and move up to a truck for loading.





DEMPSTER DIGGSTER

DEMPSTER BROTHERS, 4105 Shea Bldg., Knoxville 17, Tennessee

For more facts, use Reader-Reply Card opposite page 18 and circle No. 380

to the contractor's job site in the western part of the state. As sometimes happens even on the best of overhaul jobs, something went wrong and metal filings showed the first time the engine oil was drained. The contractor's superintendent naturally called the distributor to register a complaint.

"Don't worry about it," he was told. "Just go ahead and run the machine until it begins to show signs of failing. Give us a call then, whenever it is, and we'll send men and equipment out immediately to overhaul your machine in the field."

Several weeks later when the machine showed signs of breaking down, a telephone call was placed to the dealer. Before noon of the same day, two service trucks, two mechanics, and all the necessary tools and parts arrived at the site. The mechanics worked through the weekend to put the HD-20 back in top operating condition for its job.

Service on schedule

Power Equipment's roving 14-man mechanical force, covering all of Colorado, operates either from the Denver headquarters or the new branch office recently built at Grand Junction. These men usually travel on a weekly schedule which allows them to get back to their homes on weekends. Each two-man team has a Chevrolet service truck with overload springs heavier than normal and a four-speed transmission.

When the men leave the headquarters shop, they have a complete set of heavy-duty service tools, the equipment parts their service schedule might reasonably require that week, and a complete line of emergency parts. These include new and factory-rebuilt injectors, a complete set of gaskets for equipment the men might expect to find working in the field, spare fuel filters, oil filters, a set of master clutch linings, and other small parts which the men know are frequently needed.

For the traveling mechanic and for the company equipment salesman, the service offered by Power Equipment is the thing that keeps the company in the enviable position it holds today. Equipment sales right now are almost impossible to make without the finest kind of service. With the best of service and the dependable lines it handles, PE finds selling no problem. The company has good friends among Colorado's strongest contractors. Gross business is mounting yearly. Machinery sold by the company is seen throughout the state on almost all the important jobs. Power Equipment has proved that service and sales go well when they go together.

THE END

Stephens-Adamson division names new distributors

Five new firms have been appointed to handle the line of conveyor-belt products manufactured by the Standard Products Division of Stephens-Adamson Mfg. Co., Aurora, Ill.

In Memphis, Tenn., the new dealer is Dabney-Hoover Supply Co., Inc., 45 W. Virginia Ave. The Harshberger Equipment Co., 425 S. E. 9th Ave., Portland, will distribute the firm's conveyor-belt idlers and return rollers, car pullers, and similar equipment in Oregon.

Eastern Engineering Sales Co., 33 Allerton, Roxbury, Mass., Strong-Scott Mfg. Co., 451 Taft St. N. E., Minneapolis, Minn., Langdon Supply Co., 1317-19 Union Ave., Kansas City, Mo., and Linder, Cox & Co., 109 Allamanda Drive, Lakeland, Fla., will serve customers in their respective areas.

Exclusive dealer for Wooldridge equipment

Western Contractors Supply Co., Melrose Park, Ill., has been appointed an exclusive distributor of Wooldridge earthmoving equipment by the Wooldridge Mfg. Division of Continental Copper & Steel Industries, Inc., Sunnyvale, Calif.

The new distributor will handle the Wooldridge line in six counties in Indiana and all central and northern Illinois counties. C. W. Barrett heads the firm; Robert E. Barrett is sales manager; Ed McLain is service manager; Tom McLain is shop foreman; and J. R. Barrett is office manager. With headquarters at 4817 Lake St., Melrose Park, the dealer will offer complete parts, shop, and field service facilities.

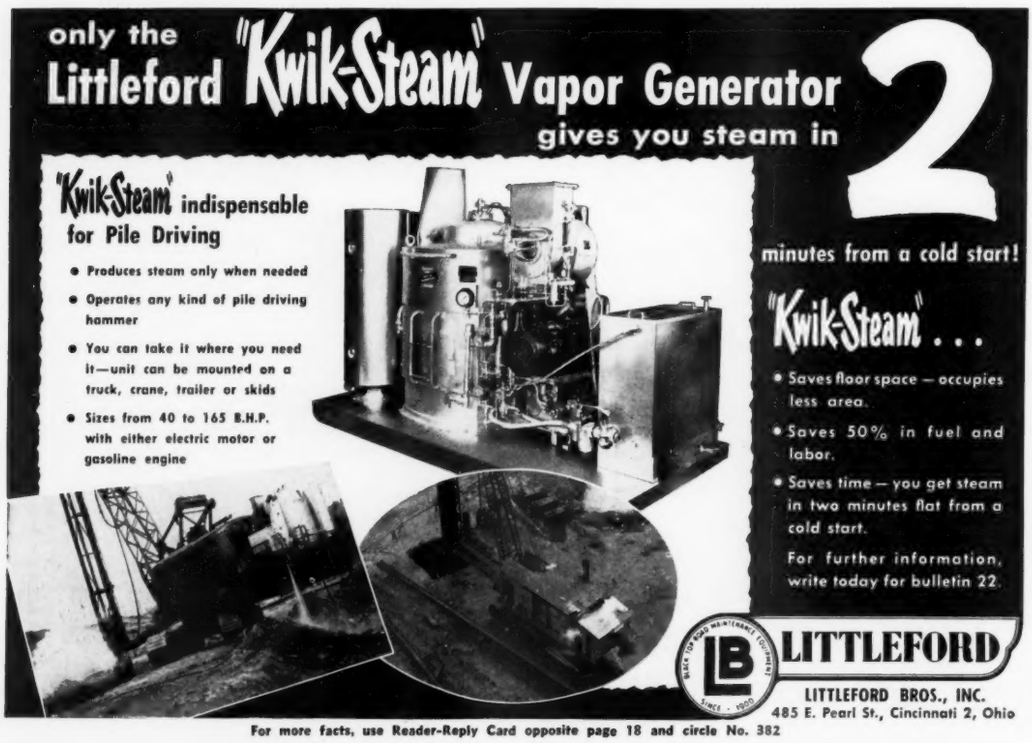
Alabama distributor for LeTourneau-Westinghouse

The line of LeTourneau-Westinghouse and Adams products will be distributed in Alabama by G. C. Phillips Tractor Co., Inc., 4419 First Ave. N., Birmingham. G. C. Phillips is president of the firm, and W. Monroe Phillips is vice president and sales manager.

LeTourneau-Westinghouse, with headquarters in Peoria, Ill., manufactures heavy-construction machinery.



For more facts, use Reader-Reply Card opposite page 18 and circle No. 381



For more facts, use Reader-Reply Card opposite page 18 and circle No. 382

New dealer starts the job of building up its service

A newcomer in the equipment distribution field this year, Euclid-Tennessee, Inc., Nashville, is taking rapid strides to establish itself as a service to the construction industry in the central Tennessee area.

Its new service shop and parts building, completed earlier this year, provides modern facilities for the storage and handling of a full line of parts as well as for the servicing of the four lines of equipment the company represents.

This masonry and steel structure has 7,000 square feet of floor space, all of which is used by the parts and service branches. The shop is equipped to provide service for any and all machines in the four equipment lines represented—Euclid tractors, loaders, scrapers, and haul units; Bucyrus-Erie cranes and shovels; Cedarapids rock-crushing and asphalt plants; and Chicago Pneumatic compressors and air tools.

To provide on-the-job service to customers, the service department is equipped with three Chevrolet ¾-ton pickup trucks manned by factory-trained mechanics and equipped with all necessary tools. Each of the pick-ups carries a Lincoln welding generator, plus a built-in tool box fitted with all the standard and special tools needed to make on the spot repairs or adjustments.

Located on busy highway U. S. 41 at the southeast edge of Nashville, Tenn., the new parts and service building stands well back from the road. Between this building and the road is an attractive office and an ample storage and display yard. Since the machines handled by this distributor are primarily of the large outdoor type, new equipment is displayed on the open lot. There are no provisions in the company's current plans for a show-room.

Euclid-Tennessee, Inc., is the fifth member of Trippeer Organizations, a group of distributors serving the Tennessee - Kentucky - Missouri - Arkansas area. R. A. Trippeer is president of the organization. James R.

(*Continued on next page*)



In front of its new shop and parts building, Euclid-Tennessee, Inc., Nashville, displays some of the equipment it handles.

C&E Staff Photo

Cresci's SELF-LOADING BODY

... makes every operator a Samson!

This new body by Cresci provides the energy for one man to unload a complete shipment in a matter of minutes with no breaking or chipping.

All mechanism is overhead allowing for a clear platform at all times. The load rides on the overhead boom. The body comes in both three and four-ton capacity.

The blocks can be turned on a swivel to facilitate stacking and close operation or lowering into excavations.

The sides are clear for easy loading and the rear posts are movable for maximum rear loading.

This all hydraulic operation has dual controls on the side of the body and a non-jamming safety factor. Power takeoff operated, the Cresci Self Loader boasts low maintenance costs. Simple in design, fast in operation, it helps speed deliveries.



Rugged and Flexible...

Help build your profits by using this strong, easily operated aid to speedy operation.



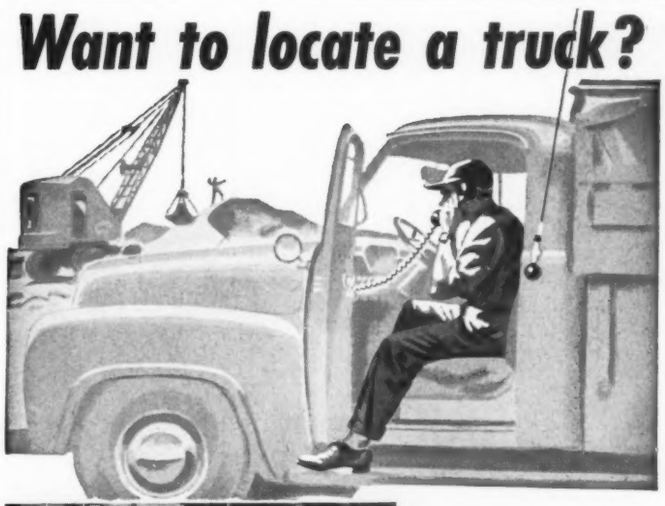
Phone, Wire or Write for Complete Details

A. CRESCI & SON, Inc.

VINELAND, NEW JERSEY • Vineland 7-1700

For more facts, use Reader-Reply Card opposite page 18 and circle No. 383

Want to locate a truck?





Find it FAST... with RCA 2-Way Radio

—says Irvin R. Worthington Burlington County (N. J.), Road Supervisor

"Our 11 trucks are on the go most of the time," says Mr. Worthington. "But with radio I can contact any of them on a moment's notice.

"We cover 500 highway miles in good weather or bad, and each truck is on call every minute of the day. In any emergency—in case of breakdowns—drivers report in by radio, and we change dispatching instructions without a minute's delay."

• • •

"To figure savings," says Mr. Worthington, "I just total the number of times we've rerouted an extra batch of concrete, eliminated cruising between jobs, gotten emergency crews out in a hurry—and I estimate we've increased our efficiency 50%."

Do It BEST with RCA 2-Way Radio. EASY TO USE as your telephone • COMPACT—takes no more space than a spare tire • TOUGH—constructed to take rough field conditions • RELIABLE—engineered by the leaders in electronics • PRACTICAL—installation and maintenance available from RCA Service Company.

FOR INFORMATION MAIL COUPON NOW



Communications Division, Radio Corporation of America
Dept. X-277, Building 15-1, Camden, N. J.

☐ Please send me information on RCA 2-Way Radio
☐ Please have a representative call on me

Name_____ Title_____

Company_____ Address_____

City_____ Zone____ State_____

RADIO CORPORATION of AMERICA
COMMUNICATIONS EQUIPMENT **CAMDEN, N. J.**

For more facts, use Reader-Reply Card opposite page 18 and circle No. 384

Elrod is vice president and general manager of Euclid-Tennessee, Inc., John L. Johnston is manager of the service department, and Henry F. Grisham is manager of the parts department. THE END

Sales changes made by Metalweld, Inc.

Metalweld, Inc., Philadelphia, Pa., as a result of its expansion program and the acquisition of franchises for International Harvester and the Frank G. Hough Co., has appointed Edgar B. Shepard manager of contractor sales and Walter T. Senkowski as manager of industrial sales. Both men will work under the supervision of sales manager N. N. Economou.

Four sales engineers have joined the MW construction equipment division of the firm. William F. Allen will cover industrials in Philadelphia, and in the Pennsylvania counties of Lehigh, Bucks, Northampton, and Montgomery. Richard H. Davis will service contractor accounts in the Philadelphia area. William J. Duffy will handle industrials in Ocean, Cape May, Atlantic, Camden, Burlington, Gloucester, Salem, and Cumberland counties in New Jersey, and in a section of Philadelphia. Frank A. Moorshead will cover industrials in Berks, Montgomery, Delaware, and Chester counties in Pennsylvania, and in New Castle, Del.

A former sales engineer, Walter T. Senkowski, has been promoted to the position of manager of industrial sales, construction equipment division.

Mr. Senkowski, a former instructor at Drexel Institute of Technology, was associated with the Philadelphia Electric Co. prior to joining Metalweld.

Manitowoc appoints dealer in midwest territory

Arrow Contractors Equipment Co., 4646 S. Kedzie Ave., Chicago, Ill., has been authorized as a distributor by the Manitowoc Engineering Corp., Manitowoc, Wis. The new dealer will handle the northeastern section of Illinois and northwestern Indiana.

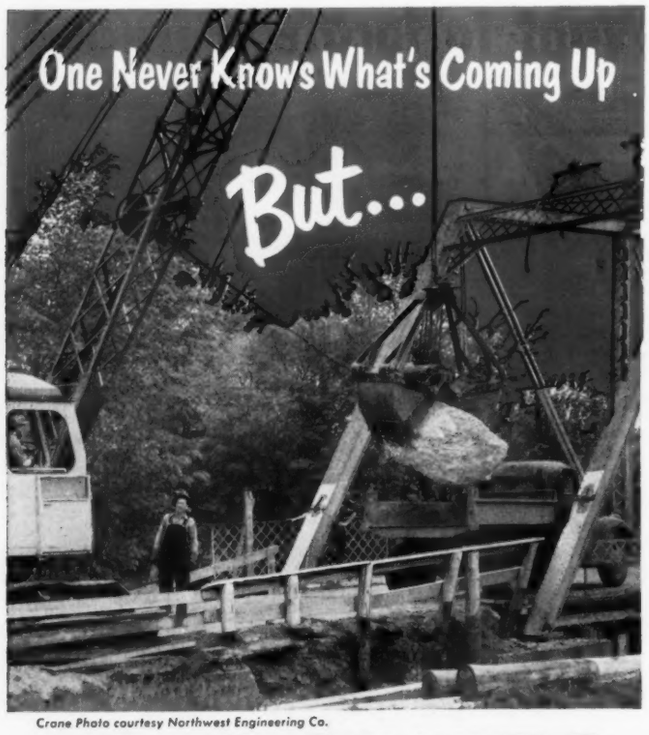
The first authorized Manitowoc distributorship in the Chicago area, Arrow is headed by Charles Riordan and has a branch outlet at 5800 S. Hoine Ave., Chicago.

Nordberg distributorship

The line of Power Chief diesel and gas engines manufactured by Nordberg Mfg. Co., Milwaukee, Wis., is being sold and serviced by Tractor & Equipment Co., Sidney, Montana. The dealer firm has main headquarters at 201 N. Central St., and branch stores in Glasgow and Miles City, Mont. The firm will cover the eastern third of Montana and the western quarter of North Dakota.

Two new dealers for Cummins diesels

A new distributor for the entire territory of Alaska has been appointed by Cummins Engine Co., Inc., Columbus, Ind. Cummins Diesel Sales



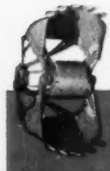
Crane Photo courtesy Northwest Engineering Co.

UP IT COMES
If it's an OWEN

Experienced contractors can determine with reasonable accuracy the general digging conditions they face, but they can hardly anticipate encountering unusual conditions such as illustrated.

If their digging equipment embodies the needed factors of extra power and strength, these problems are "taken in their stride" and the object is removed with out delay.

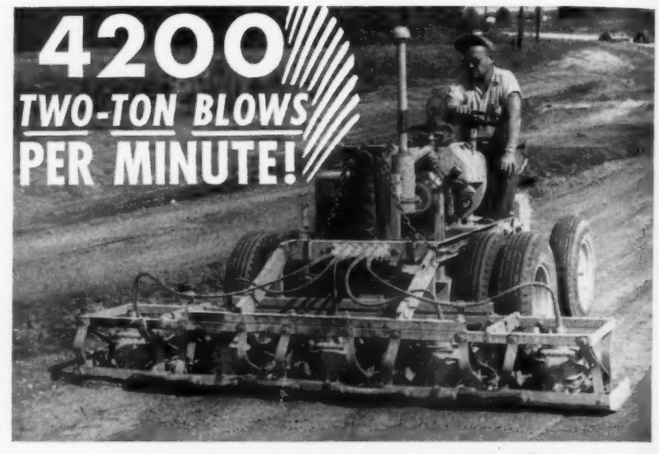
Owen, through long years of specialized experience, anticipates such difficulties in the design, engineering, and construction of their buckets. This is one of the factors that accounts for the dominant position that Owen buckets hold in excavating operations today.



Send for free illustrated catalog.

THE OWEN BUCKET CO.
6030 Breakwater Avenue • Cleveland, Ohio
Branches: New York, Philadelphia, Chicago, Berkeley, Calif., Fort Lauderdale, Fla.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 385



Here's TREMENDOUS
COMPACTION

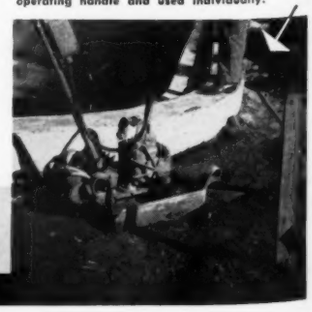
. . . for rapidly and most economically achieving or exceeding specified densities in the consolidation of rock, slag, soil-bound macadam, gravel and sand base courses. Only one pass of the Jackson Vibratory Multiple Compactor is usually required to thoroughly compact a full, standard course. Likewise, in rock and slag when sufficient fines are spread, all voids from top to bottom can be filled chock full with one pass of this machine. Standard width is 13', 3"; working speeds: Up to 60' per minute; reverse: Up to 5 MPH.

PAVEMENT WIDENING — LARGE AREA FILLS, ETC.

The Jackson Multiple is also the very finest equipment to be had for compacting the sub-base and base courses in pavement widening projects. By towing the compacting units at the side of the tractor, any granular material used for this purpose can be compacted to specified density in just one pass (compactor bases overlap). Large fills is another area in which this machine really shines. It's fast, thorough and very versatile; gets into places other machines can't reach. And for the really tight spots one or more of the compacting units may be detached, fitted with operating handle and used as a standard Jackson Manually Guided Compactor (self-propelling). By all means see this extremely advantageous equipment at your nearby Jackson distributor who has it both for rent and for sale. Distributor's name and literature on request.



The MULTIPLE on base course of a widening job 36" wide, 9" thick. One of the compacting units fitted with operating handle and used individually.



JACKSON
VIBRATORS, INC.
LUDINGTON, MICH.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 386

of Alaska, Inc., will maintain headquarters on East Fifth St., Anchorage, and will operate a branch office at 1405 Tongrass St., Ketchikan. A new Cummins office will also be opened at 1403 W. 45th St., Seattle.

A newly formed distributorship which will handle Cummins products is Cummins Diesel Michigan, Inc., 3601 Gratiot Ave., Detroit. The new dealer also has branches at 212–216 Illinois Ave., Maumee, Ohio, and 3590 Plainfield Ave. N. E., Grand Rapids, Mich.

Three firms to handle R. G. LeTourneau products

Two domestic and one foreign distributor have been added to the dealer organization of R. G. LeTourneau, Inc., Longview, Texas.

W. E. Richardson Machine Co., Inc., 2421 Second Ave., Birmingham, Ala., and Vetcoa Supply Corp., 710 S. 35th St., Phoenix, Ariz., will handle LeTourneau electric hoists and jib cranes for their respective areas.

Le Tourneau land-clearing and industrial equipment, cranes, and electric hoists will be handled in Brazil by Serva Ribeiro, S. A., with offices in Sao Paulo and Rio de Janeiro.

Two additions made at Euclid-Memphis

Charles T. Spellings has joined the Euclid-Memphis Sales, Inc., 1055 Harbor Ave., Memphis, Tenn., as a sales representative. Mr. Spellings was formerly employed by the Road Builders Equipment Co.

Last month, J. M. Holimon, owner of a construction firm himself at one time, became sales manager of the firm.

Dealer for Marion line in northern New Jersey

A new dealer for the line of shovels, cranes, draglines, clamshells, and other equipment made by Marion Power Shovel Co., Marion, Ohio, is United Tractor Equipment Corp., Lodi, N. J. United will serve northern New Jersey.

Jack Lawenda is vice president and general sales manager of the dealer firm, Dick Lawenda is sales manager, Harold Pearl is general service manager, and Jules Potter is service manager.

Vermont dealer for Clark

Avery Tractor Inc., West Lebanon, N. Y., is a new distributor for the Michigan line of tractor-shovels and excavator cranes made by the Construction Machinery Division of Clark Equipment Co., Benton Harbor, Mich. The dealer, located on U. S. 20, will cover the entire state of Vermont from Montpelier.

Galion Allsteel has new dealerships

Transportation Equipment Co., East St. Louis, Ill., has been appointed a distributor of the line of products manufactured by Galion Allsteel Body Co., Galion, Ohio, an affiliate of Central Ohio Steel Products Co.

Located at 1354 St. Clair Ave., the new distributor will provide complete maintenance, parts, and sales service on hoists, bodies, Load-evator hydraulic and electric-hydraulic end loaders.

Galion products will also be offered by South Texas Truck Equipment Co., Inc., 6 N. Latham, Houston, Texas.

New Madsen dealers in Northwest and South

Tennessee and New Hampshire dealers have been named to handle the asphalt plants and allied equipment made by the Madsen Works in the construction equipment division of Baldwin-Lima-Hamilton Corp., La Mirada, Calif.

The New Hampshire dealer is Scott Machinery Inc., 1 Railroad Square, P. O. Box 431, Concord. It will serve the entire state. In Tennessee, Hawkins Equipment Co., 1475 Thomas St., Memphis, will handle the Madsen line in all counties in the western section of the state. Both dealers will handle sales and parts service.

Buy U. S. Defense Bonds



...before it TALKS

...is the way our doctors put it—"Our chances of curing cancer are so much better when we have an opportunity to detect it *before it talks.*"

That's why we urge you to have periodic health check-ups that *always* include a thorough examination of the skin, mouth, lungs and rectum and, in women, the breasts and generative tract. Very often doctors can detect cancer in these areas long before the patient has noticed any symptoms.

For more life-saving facts phone the American Cancer Society office nearest you, or write to "Cancer"—in care of your local Post Office.

American Cancer Society

Special Report to Batch Plant Operators

HELTZEL'S AMAZINGLY ACCURATE CEMENT VALVE PROVED BEST FOR AUTOMATIC BATCHING

The heart of any cement batching plant is the valve that controls the flow of cement into the batchers. Those who know batching consider the Heltzel Tubular Cement Valve (Fig. 1) the finest ever developed, for two standout reasons:

First, the Heltzel Tubular Valve conforms to the condition of the material. If the cement is fluid and running fast, the opening can be restricted to control the flow. If the cement is compact and running slow, the valve can be opened to compensate.

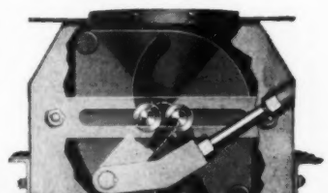


Fig. 1 Heltzel's Popular Tubular Cement Valve.

Second, the working parts of the valve are entirely enclosed, away from the cement. Ordinary plug valves are open to the cement and frequently clog and bind, necessitating work stoppage for repairs. This can never happen with the Heltzel Tubular Valve because the working parts are never exposed to the material.

These two highly desirable valve features make the Heltzel Tubular the perfect valve, where flow control and reliability are considered important. The Heltzel Tubular Valve is standard on all Heltzel Cement Plants—straight or combination. It can be operated manually or by means of an air or hydraulic cylinder, as the customer requires. It is used on Heltzel Recirculators and cement loading bins as a control valve or gate.

The Perfect Automatic Valve

For automatic cement batching, from either the straight cement or the combination plant, Heltzel engineers have developed the Heltzel Combination Rotary Feeder-Tubular Valve (Fig. 2). Note in the charge sequence, pictured at the bottom of this page, when the batch cycle is started (Fig. 3) both the Tubular Valve and the Rotary Feeder function simultaneously. When 90 to 95% of the batch has been weighed the scale automatically closes the Tubular Valve. The Rotary Feeder continues to operate (Fig. 4) until the final few pounds are weighed in. When the scale reaches the desired weight, compensated for mid-air material, a motor brake stops the Feeder instantly (Fig. 5).

Speed Plus Accuracy

This combination of Rotary Feeder and the Heltzel Tubular Valve means unparalleled speed with pinpoint accuracy—the ideal conditions for efficient automatic batching.

And, the Heltzel Combination Rotary Feeder-Tubular Valve greatly reduces the possibility of work stoppage due to valve failure. If the standard rotary feeder or rotary plug valve mal-functions, or a power failure occur, the plant cannot be operated. With the Heltzel Combination Valve, the plant is still operative, because the cement can be gravity fed into the batcher manually through the Tubular Valve.

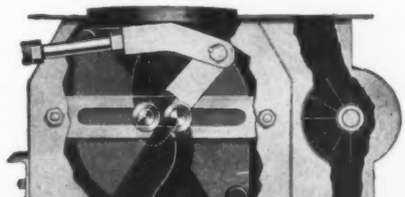


Fig. 2 The New Heltzel Combination Rotary Feeder-Tubular Valve.

If you use batching equipment, cement, aggregate or combination—portable or stationary—it will pay you to look over the Heltzel complete line of Batchmasters—the finest, fastest most accurate and dependable plants available today. Literature available. State your requirements and booklets covering your type operation will be sent to you by return mail.

HELTZEL STEEL FORM and IRON Company
55000 Thomas Road
WARREN, OHIO

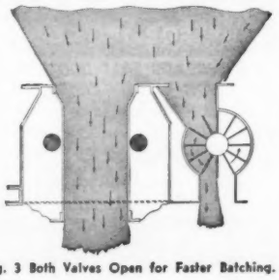


Fig. 3 Both Valves Open for Faster Batching.

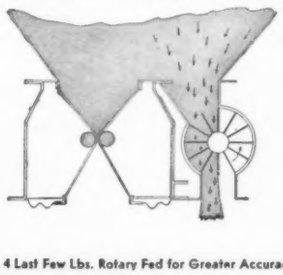


Fig. 4 Last Few Lbs. Rotary Fed for Greater Accuracy.

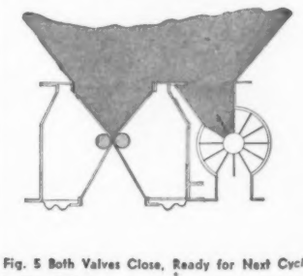


Fig. 5 Both Valves Close, Ready for Next Cycle.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 387

The weather outlook for November

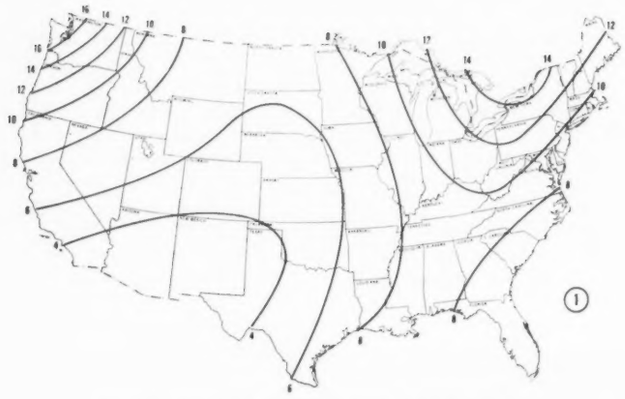


Chart 1. Days with .01 inch or more of precipitation.

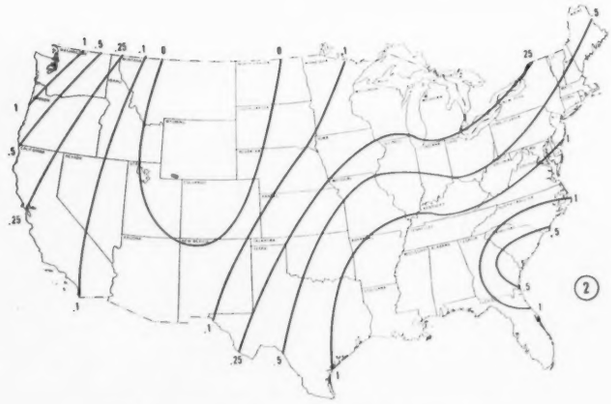


Chart 2. Days with 1 inch or more of precipitation.

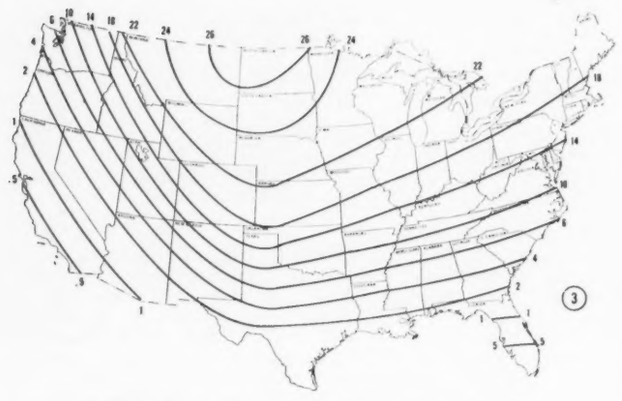


Chart 3. Days with temperatures 32 degrees or lower.

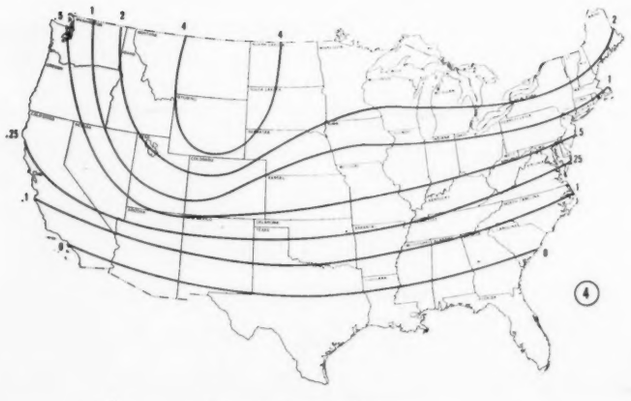


Chart 4. Days with snow.

The four maps showing the weather picture for November indicate the average number of days with precipitation (rain or snow), days with temperature 32 degrees or lower, and days with snow.

The black lines on the chart indicate the average number of times these weather elements will occur during the month. A decimal value such as .5, .25, and .1 means the condition will occur only once every 2, 4, and 10 years, respectively.

If, for instance, a contractor in Chicago, Ill., does not want to chance pouring concrete on days with temperatures below freezing, he will find by consulting chart 3 that there will be about 20 days when below-freezing temperatures will occur some part of the day. Therefore, he will have only about 10 days to pour concrete. By consulting chart 4 he will find an average of 1 day of snowfall expected, and consulting chart 1, an average of 10 days of precipitation. The contractor would be wise to assume that these conditions will occur on a greater number of days than indicated.

These charts show average conditions, and are not intended to be specific forecasts. Compiled by Weather Corporation of America, and based on weather-station records for the past 60 or more years, the charts show only average weather to be expected for November.



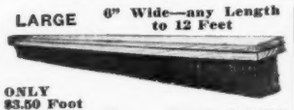
Trade In Your Old Cores

FLASH ! ! DO YOU KNOW
WE MANUFACTURE
ROTARY SWEEPER CORES
Most Any Popular Make To Fit
GRACE • HOUGH • LULL • ROSCO
LITTLEFORD • DETROIT HARVESTER
and Others - Send Your Specs

REFILLS—SPECIALISTS WITH SPRING STEEL WIRES AND FIBRES
REPAIRS - ANY MAKE SIZE OR TYPE - 24 HR. SERVICE

PECKERWOOD STEEL WIRE DRAGS

LARGE 6" Wide—any Length to 12 Feet



ONLY $3.50 Foot
Buy in Lengths Assemble Your Own
NAME YOURS

Drags Not Staple Set
SMALL
Fits Your Frame
3" Wide
15" Long
Now $2.50 ea.



Prices Subject to Change Without Notice

SINCE 1928 VAN BRUSH MFG. CO.
327 SOUTHWEST BLVD - KANSAS CITY, MO.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 388

JUST DRIVE ON!
cut loading time with MILLER Tilt-Top! up profit time



You can't beat MILLER Tilt-Top's fast, easy loading. ONE man can drive on or off the tilted platform in less than two minutes . . . without the bother of any special skids, cribbing or jacks. This easier, faster loading cuts time between jobs, adds more productive, profit time every day. Whatever you haul, dozers, trenchers, rollers or other heavy equipment, there's a MILLER Tilt-Top to handle them easier, faster and safer!

Model "B" 10 ton $1175*
Optional equipment (priced extra): 16' long platform (8'x14' standard) hydraulic tilt control, 2 speed hand winch and electric brakes.
*FOB Milwaukee, Plus 8% Federal Tax

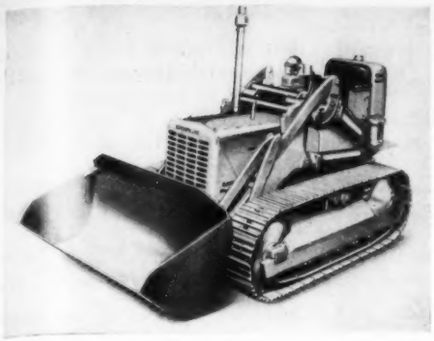
miller Tilt-Top trailer company
456 S. 92nd St., Milwaukee, Wis.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 389

SWENSON SPREADERS
FOR ICE CONTROL
SPREADS SALT 200 LBS. PER MILE
OR IN ANY DESIRED AMOUNT
Lays a Narrow Strip or Full Traffic Lane
Handles all granular materials — salt, cinders, sand, calcium chloride, rock chips. Spreads at speeds up to 30 M.P.H. Clutch-controlled flow: steady or intermittent for hills and intersections.
Write for complete information
SWENSON SPREADER & MFG. CO.
LINDENWOOD, ILLINOIS



For more facts, use Reader-Reply Card opposite page 18 and circle No. 390



◀ Forty degrees of bucket tilt-back give the new No. 955 Traxcavator the ability to get heaped loads.

Bucket tilt-back shortens work cycle of new 1 1/2-cubic-yard tractor-shovel

■ Caterpillar Tractor Co.'s new addition to its Traxcavator line, a 1½-cubic-yard tractor shovel, has a bucket that tilts back up to 40 degrees at ground level.

The advantage of this feature in stockpile loading is that the bucket can be driven into the material and then tilted to get a full load in a single pass without declutching. While digging in, the bucket can be alternately tilted and leveled to work its way into the pile. Because both a horizontal tractor push and an upward hydraulic thrust can be exerted simultaneously, there is a better bucket "breakout" action.

In excavating or stripping operations, bucket tilt-back makes it possible to control the depth of cut while the tractor is in motion without stalling the engine.

The ability to tilt the bucket back is also an advantage after the bucket is loaded. The load can be carried in a low position and closer to the tractor, improving stability.

Constructed with many of the same parts used in the Cat D4 crawler tractor, the new No. 955 Traxcavator differs from this tractor in general appearance and in the location of major components. The seat, for example, is higher and further forward to give the operator a better view of his work. Visibility has also been improved by placing the tilt cylinders at a low level. At the same time dumping clearance for loading trucks is high, about 6¾ inches higher than on the Cat HT4 tractor-shovel.

Long track roller frames provide good stability and low ground pressures, while three bar grouser track shoes supply ample traction.

The inside surface of the bucket is unobstructed, and the spill-plate portion of the bucket is of double thickness and extends high up.

The No. 955 Traxcavator is equipped with an oil-type flywheel clutch. Two reverse speeds up to 264 feet per minute and four forward speeds up to 607 fpm are available.

The overall dimensions of this 70-hp Traxcavator are: length, 15 feet 1¼ inches; width, 80 inches; height, 82⅛ inches; ground clearance, 13 7/16 inches; and weight, 21,480 pounds.

For further information write to Caterpillar Tractor Co., Peoria 8, Ill., or use the Request Card at page 18. Circle No. 35.

Concrete saws and blades

■ The line of automatic concrete-sawing machines and blades offered by the Robert G. Evans Co., 7204 Wyandotte, Kansas City 14, Mo., is illustrated and described in a folder available from the company. Concrete-cutting saws, masonry saws, and both abrasive and tungsten-carbide diamond blades are pictured and their features explained.

The Target Model 150 concrete saw, which is said to offer power and easy maneuverability at comparatively low cost, and the Model 360 self-propelled unit, which offers high-precision cutting and a selection of cutting speeds, are illustrated. Diagrams illustrate the operation of these two units. The Target line of blades also is displayed in the folder.

To obtain this folder write to the company, or use the Request Card that is bound in at page 18. Circle No. 95.

INVEST IN

U. S. DEFENSE BONDS

NOW EVEN BETTER

Save 5¢ to 15¢ Per Sq. Ft., Every Pour, with Compo Forms



What makes costs so high on so many concrete forming jobs? Usually it's:

1. Handling, fitting and stripping heavy, cumbersome forms.
2. Excessive finishing because of wide form crevices and large tie holes.

Modern, money-saving forming is done with Atlas Compo Forms. *Light* (they average less than 5 lbs. per square foot) — a man can handle more in a day. *Fast* — they have the simplest tie system ever developed. *Accurate* — only minimum finishing is required.

You can use Atlas Compo Forms for practically any shape or type of structure, and actual job records show that savings seldom are less than 5¢ per square foot per pour . . . often run to 15¢ and more.

Atlas Compo Forms are furnished on a liberal rental-with-option-to-buy basis. If you are figuring a job now, send plans for quotation. Otherwise, write for file information for future job reference.

IRVINGTON FORM & TANK CORPORATION

Department C&E10, 20 Vesey Street, New York 7, N. Y.

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400% MORE PUMPING!

and LESS SHOCK
LESS WEAR
LESS STRAIN



ENGINE DRIVEN DIAPHRAGM PUMP Model 3D-8 R 6

MOTOR DRIVEN DIAPHRAGM PUMP Model 3D-E 1½

THE BEST DIAPHRAGM PUMP *Ever Built!*

GORMAN-RUPP Firsts —— among all other diaphragm pumps of like size and type.

- Diaphragm drive rod spring-cushioned on down stroke. Runs smoothly. Increases diaphragm life **10 Times.**
- More Pumping — by as much as 400% at 25 feet static lift.
- Suction Accumulator provides continuous smooth flow of water.
- One man handling — engine driven pump only 130 pounds job-to-job. Motor driven 165 pounds.
- Easy hook-and-tighten fittings with hose connected.

See this pump at work on the job, through your Gorman-Rupp distributor. It is absolutely guaranteed to outperform and outlast any 3 in. single diaphragm pump comparably powered now on the market.

Ask for information bulletin 4-DR-11



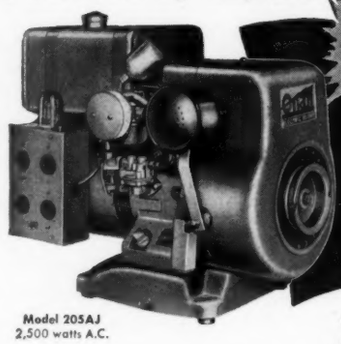
NOTES FROM THE FIELD - -

Bridging Kokosing River on U. S. Route 36 at Mount Vernon, O. Model 3D-E1½ diaphragm pump and model 3362-B contractors' pump, both electric powered, and model 3205 contractors' pump engine powered – On The Job.

THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

For more facts, use Reader-Reply Card opposite page 18 and circle No. 392

More Power, Lighter Weight, More Compact
Powered by dependable 4-cycle engines



New ONAN *Portable* ELECTRIC PLANTS

Model 205AJ 2,500 watts A.C.

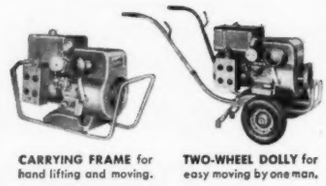
Put more power on the job!

These new power-packed electric plants are smaller . . . lighter . . . easier to take along and move around. Model 205AJ shown here weighs only 154 pounds . . . *yet it develops 2,500 watts A.C.*

Multiple receptacles allow direct plug-in of several floodlights or heavy-duty electric tools, supplying a whole crew with labor-saving electric power.

These new plants are completely Onan-built with Onan engines direct-connected to Onan generators for trouble-free long life. Carrying frames and two-wheel dollies are optional equipment.

Onan Portable Electric Plants: 500 to 5,000 watts.



CARRYING FRAME for hand lifting and moving.

TWO-WHEEL DOLLY for easy moving by one man.

Write for Folder

Onan ELECTRIC PLANTS

D. W. ONAN & SONS INC.

2801 University Avenue S. E., Minneapolis 14, Minnesota

For more facts, use Reader-Reply Card opposite page 18 and circle No. 393

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1. WORN TOOTH



2. TRIM WITH TORCH



3. SELECT WING-DING



4. WELD AROUND EDGES



reduce welding time to a minimum—

REBUILD WORN TEETH

...the modern...quick...easy way with—

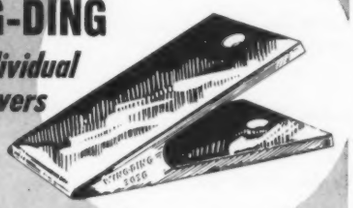
MANGANAL

T.M. Reg. U.S. Pat. Off.

CAST 11%-14% MANGANESE-NICKEL STEEL

WING-DING

Individual Slip-Overs



- Replace worn metal faster.
- Eliminate hard-to-make welds in deep Vee.
- Plug welds, through holes in wings, give extra strength.
- Nine individual casting sizes to fit every size tooth.
- For stronger welds attach with MANGANAL FLO-KOTE, SPECIAL TITE-KOTE or BARE WELDING ELECTRODES. Weld deposits easily cut with torch when tooth is repointed again.

STULZ-SICKLES CO.

SOLE PRODUCERS 92 N. J. RAILROAD AVE. NEWARK, N. J.

NEAREST DISTRIBUTOR UPON REQUEST

For more facts, use Reader-Reply Card opposite page 18 and circle No. 394

Labor and Time Savings on the Job!



HANDLE MANY JOBS WITH THESE ATTACHMENTS



Strike-off Box Attachment. For road widening fill and asphalt paving. Adjustable on three sides to 6" above grade. Strike-off blade extends 4'. Remove with one pin.



Conveyor Extension Attachment permits backfilling 24" high curb or placing material over 7' from wheels. Take-off drive. Unit is 4' long with independent belt.

Distributors: Write for information on available territories.

POWER-PACK BACKFILLER

Performance proved! Everywhere POWER-PACK has been used great savings result in labor and time . . . also you can expect a better fill with no material wasted!

Only one man operating the POWER-PACK can power-backfill curbing, trenches, and pipelines at the rate of *three tons per minute!* This equipment has actually paid for itself on a single job.

Ruggedly built for long service. Easily portable with four swivel wheels and a sure, quick hitch. Can be used with any size dump truck including trailer dumps. Dependable 8.25 Wisconsin engine. Heavy duty belt.

To save time and money investigate POWER-PACK today! Write for booklet or phone your distributor.

POWER-PACK CONVEYOR CO.

13910 Aspinwall Avenue Cleveland 10, Ohio

For more facts, use Reader-Reply Card opposite page 18 and circle No. 395

CLASSIFIED ADVERTISING

An advertising inch in the Trading Post is measured ⅞-inch vertically on one column. Space reservation close in the New York office on the 10th of the month preceding publication. Send your classified copy to:

The Trading Post, Contractors & Engineers
470 Fourth Avenue, New York 16, N. Y.

STOP that WATER

With FORMULA No. 640

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—hold 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs. Applied quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.
HAYNES PRODUCTS CO., OMAHA 3, NEBR.

WANTED—COMPLETE SAND WASHING PLANT (REBUILT).

Electrical Operation Preferred. Capacity 250–300 cu. yards, 8 hour day. Give voltage, full particulars and price. Roder-Blackburn International Corp., 149 Broadway, New York 6, N. Y.

For Sale

One D-8 Cat with blade and LeTourneau scraper. Both good condition. Call or write Tilton Homes Corp., Rochelle, Illinois

HEAVY DUTY TRAILER FOR SALE

Triple axles, 12 wheels, full trailer. Army-type T-61. 65-ton capacity. Axles, bearings, frame, spring pile, wheels all extra duty, excellent condition. 1400 x 24 rubber. Suitable conversion machinery trailer. Components worth considerably more than asking price of best offer over $3,000.00. Located S.E. Pennsylvania. **Roder-Blackburn International Corp., 149 Broadway, New York 6, N. Y.**

Leading sales organization covering Pennsylvania, Ohio and West Virginia territories, desires an account on an exclusive basis on additional line of machinery and equipment that is ordinarily sold to the heavy industries such as steel mills, fabricators, etc.

For further information and interviews, address

Box 401,
Contractors and Engineers,
470 Fourth Ave., N. Y. 16, N. Y.

DECALS

SAVE UP TO 25% ON YOUR DECALS

10 DAY DELIVERY

FOR PRICES SEND ROUGH PENCIL SKETCH OR DECAL YOU ARE NOW USING

MIRACLE DECAL CO.
734 South Washington
WICHITA, KANSAS

VULCAN

PILE HAMMERS AND EXTRACTORS REBUILT AND REPAIRED TO FACTORY STANDARDS

327 N. BELL AVE., CHICAGO 12, ILL.

Now!

BUY used equipment
SELL used equipment
ACQUIRE competent personnel through
The Trading Post Section of CONTRACTORS & ENGINEERS

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In earthmoving contest:



Semi-automatic transmission tops torque converter drive!

An unusual earthmoving contest, to prove or disprove to a contractor the value of Fuller's new 9-speed Semi-Automatic R-1150 ROADRANGER® Transmission in scraper operation, recently caused much comment on one of the Nation's major turnpike construction projects.

For purposes of the test, the Fuller R-1150 was installed in place of another transmission in existing equipment . . . and operated in competition with a scraper equipped with torque converter-transmission combination.

Scene of the contest was a 3400-foot run with favorable and adverse grades up to 15 per cent. The Fuller 9-speed Model R-1150 ROADRANGER® Transmission, shifted with a single lever, was installed in an M-R-S 200 Tractor pulling a Caterpillar Model 90 Scraper of 25½ yards struck capacity. The tractor equipped with the torque converter combination pulled a scraper of 18 yards capacity. Material was sandy and moist with 25 per cent gravel and stone.

With the Semi-Automatic R-1150 ROADRANGER® Transmission, positive driver selection of each gear ratio to meet all conditions from borrow pit to dump resulted in greater fuel economy and faster trip time with 30 per cent larger loads. Complete comparative results are shown in the tabulation in the score card at the right.

The Fuller Model R-1150 is de signed especially for trucks and tra tors of up to 1150 cu. in. displacem and developing up to 800 foot pou of torque. Advantages of the ne transmission include:

1—Nine forward speeds in sele tive ratios, evenly and progressive spaced, *shifted with one lever;* **2**— All-Air Control for quick and ea pre-selected, automatic and synchro ized range shifts; **3**—Nine even spaced ratios averaging 38 per c steps; **4**—More positive traction drive wheels; **5**—Greater fuel eco omy; and **6**—Positive selection operating ratios by the operator.

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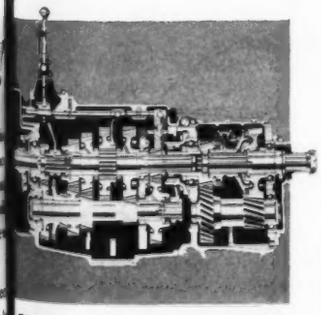
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This Fuller Model R-1150 ROADRANGER® transmission provides 9 selective and progressive ratios with NO gear splitting. Engines operate in peak hp range with greater fuel economy because of the short, evenly spaced steps between ratios.

SCORE CARD

	M-R-S 200 25½-Yard Scraper Fuller R-1150 Transmission	18-Yard Scraper Torque Converter Transmission
Trips	9	8
Average loading time	1.41 minutes	1.29 minutes
Average cycle time	7.48 minutes	8.08 minutes
Estimated payload each trip, 80% bowl factor	20.4 yards	14.4 yards
Trips (50-minute hour)	6.68	6.19
Production on 50-minute hour	136.27 yards	89.13 yards
Gross revenue at 20 cents a yard, for hauling only	$ 27.25	$ 17.83
Less Estimated Direct Costs	$ 14.00	$ 11.71
Gross Profit Hauling Only	$ 13.25	$ 6.12
Ratio M-R-S Production	153%	100%
Ratio M-R-S Profit	217%	100%

Fuller

FULLER MANUFACTURING COMPANY
TRANSMISSION DIVISION • KALAMAZOO, MICH.

Dodge Body Corp. Div., Milwaukee 1, Wis. • Shuler Axle Co., Louisville, Ky. (Subsidiary) • Sales & Service, All Products, West. Dist. Branch, Oakland 6, Cal. and Southwest Dist. Office, Tulsa 3, Okla.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 396

MANUFACTURER MEMOS

Sherman Products fills Cleveland sales post

Warren E. Henderson has been appointed manager of the Cleveland, Ohio, zone of Sherman Products, Inc., Royal Oak, Mich., manufacturer of earthmoving and material-handling equipment for Ford and Fordson-Major tractors. His sales and service zone includes Ohio, West Virginia, western Pennsylvania, and lower Michigan.

Iowa appointments

The Iowa Mfg. Co., Cedar Rapids, Iowa, maker of the Cedarapids line of aggregate-producing and bituminous-mixing equipment, has appointed four men to its sales department. Harry M. Ford will handle the states of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island, as well as northern New Jersey and metropolitan New York. He will be located in West Franklin, N. H. C. E. Lutz, operating from headquarters in Pittsburgh, will cover Ohio, Indiana, Kentucky, western Pennsylvania, and West Virginia. The new Iowa sales representative for Utah, Wyoming, Montana, Colorado, and the Canadian provinces of Alberta and Saskatchewan is R. C. Gregor, whose headquarters are in Salt Lake City, Utah. K. F. Hamilton has been appointed to the company's domestic sales department.

New vice presidents for Thew Shovel Co.

M. B. Garber and E. C. Brekelbaum have been elected vice presidents of The Thew Shovel Co., Lorain, Ohio, construction machinery manufacturer. Mr. Garber, with the company for 28 years, has served as assistant sales manager, general sales



M. B. Garber

manager, export manager, and director of sales. He is active in a number of construction industry associations.

Mr. Brekelbaum joined Thew in 1952 as director of methods after being with Harnischfeger Corp., Milwaukee, Wis., for 17 years. In 1954, he was made assistant to the general



E. C. Brekelbaum

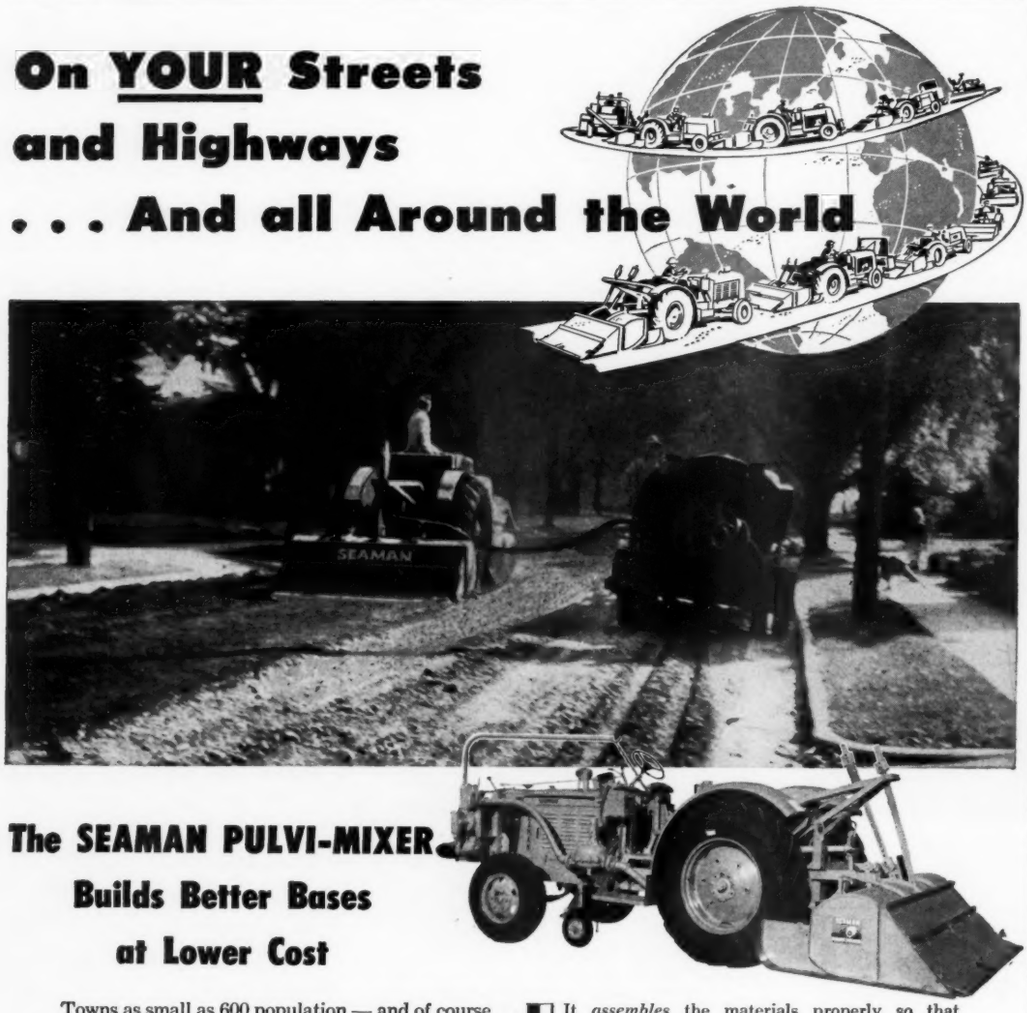
manager of Thew, with responsibility for methods, engineering, and quality control. C. B. Smythe, president of the firm, has been elected treasurer of the company, and will carry the title of president-treasurer.

Harnischfeger Corp. makes personnel changes

J. F. Catalane has been named general sales manager of the P&H Construction and Mining Division of Harnischfeger Corp., Milwaukee, Wis. Mr. Catalane, who has also become a member of the corporation's executive committee, will remain sales manager of the Power Crane and Shovel Division.

Robert P. Jones and Raymond A. Ehn have been appointed assistant general sales manager of the P&H Construction and Mining Division and assistant sales manager of the Power Crane and Shovel Division, respectively.

On YOUR Streets and Highways . . . And all Around the World



The SEAMAN PULVI-MIXER Builds Better Bases at Lower Cost

Towns as small as 600 population — and of course cities with several millions of people, find the SEAMAN Mixer builds better bases for a lot less money. Townships with relatively few miles of road, counties and states with big highway programs depend upon the PULVI-MIXER as primary equipment.

And that's true in virtually all the free countries throughout the world. Why?

- The PULVI-MIXER mixes any suitable native material with any binder.
- It mixes in-place to cut material handling cost.
- It *assembles* the materials properly so that coarse aggregates and fines are perfectly blended. Segregation is eliminated. Voids are filled with fines to securely mortar-in the larger aggregates.
- It provides higher densities, higher load-bearing values — and cuts maintenance to a fraction.
- And it operates at the lowest cost per square yard in *any* stabilized construction.

You'll find many more good reasons when you put a PULVI-MIXER to work in your street and highway projects. Call your SEAMAN distributor today.

The story of SEAMAN-mixing is told in detail with many job photos and diagrams. Just jot "Bulletin TPS" on a postcard and mail it — today.

S-A

SEAMAN-ANDWALL CORPORATION

282 NORTH 25th ST. MILWAUKEE, WISCONSIN

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E. B. Hill, the assistant to the president of Koehring Co.

Assistant to president named by Koehring

The newly created position of assistant to the president for Koehring Co., Milwaukee, Wis., has been filled by E. B. Hill. Mr. Hill, with more than 30 years' experience in the construction-machinery field, had served as vice president and director of sales, advertising, and export sales for Gar Wood Industries, Inc., before joining Koehring.

Koehring, which manufactures power cranes and shovels, concrete mixers, pavers, and similar equipment for the construction field, has subsidiary plants in Champaign, Ill., Port Washington, Wis., and Newton, Iowa. Since 1948, the firm has added parts storage, manufacturing, and fabricating facilities at Chattanooga, Tenn., and Stockton, Calif. The company has Canadian manufacturing facilities at Brantford, Ontario, and owns an interest in a Japanese firm now building Koehring excavators and other products.



William O. Robertson, the new vice president of sales for Armco Drainage & Metal Products, Inc.

Armco Drainage & Metal reassigns executives

Four executive changes have been made by Armco Drainage & Metal Products, Inc., a subsidiary of Armco Steel Corp., Middletown, Ohio.

William O. Robertson, former vice president and manager of the eastern division, has been named vice president in charge of sales. He has been with Armco since 1929. Robertson will be replaced in the eastern divisional post by Tom M. Neibling, who had been vice president and manager of the southwestern division.

Succeeding Neibling in the southwest is W. W. Mains who had held the corresponding position in the Missouri-Kansas division. A. J. Mistler, a former division sales manager, has become vice president and manager of the Missouri-Kansas division.

R. G. LeTourneau appoints

A new addition to the sales-management staff of R. G. LeTourneau, Inc., Longview, Texas, is John E. McCausland. Mr. McCausland was formerly with the Adams Division of LeTourneau-Westinghouse Co.

Le Roi appoints Buttner

The Le Roi Division of the Westinghouse Air Brake Co., Milwaukee, Wis., maker of internal combustion engines, air compressors, Tractairs, and air tools, has a new manager of engineering in H. J. Buttner. Mr. Buttner has had nearly 25 years of engineering experience in the design and development of high-output internal combustion engines.

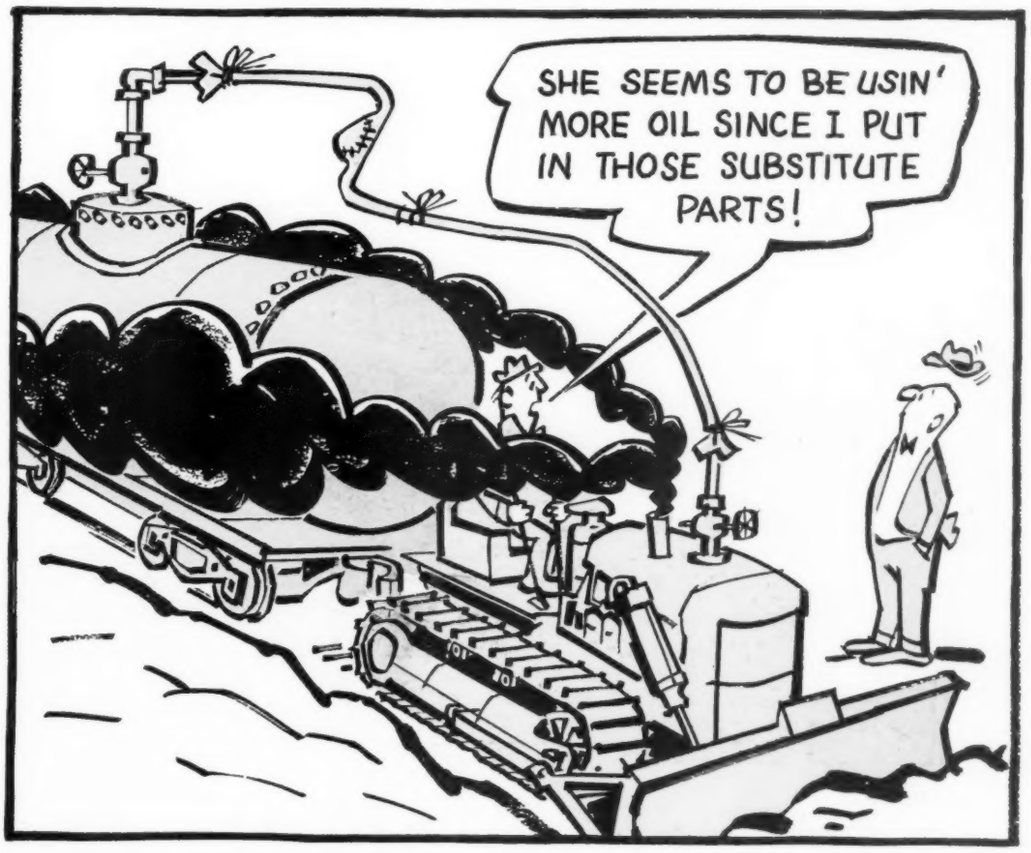
CMC Sales Co. names Loveall vice president

The new vice president and general manager of Construction Machinery Sales Co., Waterloo, Iowa, is Tony Loveall. A graduate engineer of Iowa State College, he was formerly a member of the field force of Construction Machinery Companies.

Construction Machinery Cos. manufacture a line of truck mixers, concrete mixers, hoe-type mixers, batching equipment, pumps, hoists, and masonry saws.



Tony Loveall, recently appointed vice president of Construction Machinery Sales Co.



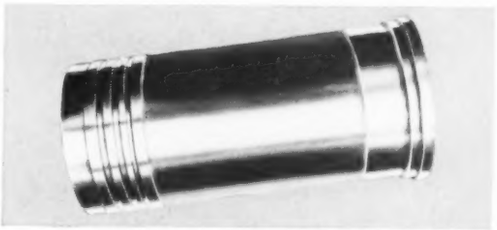
Chances are you'll never need to hook on a tank car to avoid down time. Chances are you *will* have to do something about cylinder liners at one time or other, though.

If you replace with a Caterpillar-built liner, you're sure of a liner made of a special nickel-molybdenum-chrome alloy that's tougher and stronger than steel, more resistant to heat and abrasion. You're sure of controlled induction hardening that makes bare surfaces highly resistant to wear, and of bores chemically treated for easier break-in—better seating of rings. You're sure of precision machining for smoothness, roundness and straightness the full length of the liner.

If you replace with a non-genuine liner, can you be sure of anything?

Better get Caterpillar parts every time.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.



This is a genuine CAT cylinder liner. As many as 14 different inspections guarantee its composition, strength and hardness.*

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.



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Report on the MICHIGAN TURBO-DOZER:

New dozer features 27 mph speed, power-tilting bowl, rear-wheel steer

The new 2¾ yd. capacity Michigan Turbo-Dozer combines rubber-tired speed and mobility with outstanding traction and power. Its turbocharged diesel engine develops 165 hp, with maximum rimpull of 28,000 lbs.—plenty of power for heavy dozing, push-loading and land clearing. At 27 mph, it runs rings around any dozer on the market!

Power-tilting bowl. A powerful double-acting hydraulic cylinder tilts the bowl back and forth through a 33 degree arc. You can change the angle of the bowl from "dig" to "float" as you travel—work the cutting edge back and forth under stumps and boulders to uproot them. Two 6-inch lift cylinders give you tremendous lifting power and down-pressure—you can raise the cutting edge from 24¼ inches below ground level to 43¾ inches above.

High flotation tires, oscillating axle. Big 18.00-25 low pressure tires (nearly 7-foot tread) give the Turbo-Dozer excellent ground contact in dry, wet or sandy footing. You can cross railroad tracks or travel along the ties or road bed; you can climb curbs and drive safely on any kind of road surface. On uneven terrain, the steering-drive axle oscillates to keep both rear wheels in firm contact with the ground. With 14½ inches of ground clearance underneath, it's practically impossible to get "hung up".

Full traction while turning. The Turbo-Dozer gives you full tractive effort even in a turn. *All four wheels are always driving,* except when you declutch the rear axle for highway travel. Rear-wheel steering eliminates unnecessary tire wear —you don't brake or drag your inside wheels on a turn. If one wheel begins to slip, a locking differential automatically applies power to the wheel with the firmest footing.

Power-shifting, 300% torque multiplication. Clark's exclusive power-shift transmission eliminates the conventional engine clutch and foot pedal—the most notorious cause of excessive maintenance and operator fatigue. With two finger-tip levers on the steering column, the operator can instantly shift between High-Low and Forward-Reverse—even when moving in either direction.

The 3-to-1 Clark torque converter gives you a steady power flow, regardless of speed. As the load gets heavier the torque output automatically increases up to 300% at stall speed—gives you the extra torque to plow through the toughest spots. You can't stall the engine, and there's no clutch to slip.

Prove it for yourself. The new Michigan Turbo-Dozer gives you faster cycles and more yardage in every shift—more dollars of profit every day. Ask your local Michigan distributor to prove it, with an on-the-job demonstration; or write direct for detailed specifications. The Turbo-Dozer is available on the low-cost Michigan Lease Plan: no down payment, pay as it produces!

MICHIGAN is a trade-mark of Clark Equipment Co.

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY
Construction Machinery Division
384 Second Street
Benton Harbor 35, Michigan

For more facts, use Reader-Reply Card opposite page 18 and circle No. 399

